EVAM, A New Revolutionary Ratio?

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Title

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1. Definitions

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<td>Capital employed</td>
<td>Noncurrent assets plus working capital</td>
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<tr>
<td>CRE</td>
<td>Corporate Real Estate</td>
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<td>CSR</td>
<td>Corporate Social Responsibility</td>
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<td>EVA</td>
<td>Economic Value Added</td>
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<td>EVAM</td>
<td>Economic Value Added Momentum</td>
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<tr>
<td>Net Interest Expense</td>
<td>Interest income minus interest expense</td>
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<td>NI</td>
<td>Net Income</td>
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<td>NOPAT</td>
<td>Net Income + Net Interest Expense * (1 – tax rate)</td>
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<tr>
<td>NPV</td>
<td>Net Present Value</td>
</tr>
<tr>
<td>OMX</td>
<td>The Swedish Stock Exchange</td>
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<tr>
<td>PP&amp;EE</td>
<td>Property, plant and equipment</td>
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<tr>
<td>PPTY</td>
<td>Total real estate assets over gross tangible assets</td>
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<tr>
<td>ROE</td>
<td>Return on Equity</td>
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<td>ROA</td>
<td>Return on Assets</td>
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<td>S&amp;LB</td>
<td>Sale and Leaseback</td>
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<tr>
<td>WACC</td>
<td>Weighted average cost of capital</td>
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2. Abstract

**Purpose:**

To investigate the usefulness of the Economic Value Added Momentum ratio and to determine if Swedish non-real estate, non-financial companies been either positively or negatively affected by their Corporate Real Estate structure from an EVAM perspective.

**Design/methodology/approach:**

Using a regression analysis composed of the OMX large and mid cap non-real estate, non-financial companies, investigates the relationship between companies’ real estate holdings and their ability to sustain a positive EVAM. The study covers the time period from 2006 to 2009 and includes 172 observations.

**Findings:**

The data showed that a negative relationship between EVAM and PPTY at the 10% real estate intensity interval might exist. However, no evidence was found that might suggest that a negative relationship between EVAM and corporate real estate holdings at the higher (15% real estate intensity) or the lower (5% real estate intensity) existed. This could suggest that companies’ that own lower percentages of real estate assets (less than 5% of PPTY) are not affecting their EVAM value and that companies’ that own larger amount of real estate (15% of PPTY or higher) are better at managing their real estate assets and thus it is not negatively impacting their EVAM.

**Research Implications:**

Real estate is reported at historical cost rather than at current fair market values. As the economy has, historically, enjoyed more periods of expansions than contractions, intuitive companies’ real estate assets are undervalued. Economic recession and booms can also dilute both the positive and negative aspects of real estate ownership. Although this investigation seeks to neutralize this phenomenon by including two periods of economic expansion and two periods of economic recession, it is unreasonable to claim that this will completely neutralize this affect.

**Practical Implications:**

The companies that have a PPTY of between 10% and 15% might be better off selling their real estate holdings or investing additional funds in real estate so as to either have a PPTY below 10% or above 15%. Companies that are in-between the 10% and 15% real estate ownership segment might not deem it cost effective to have specific real estate professionals or to invest in real estate know-how; however, the firms’ might at the same time own too much real estate, making it too costly to do nothing. Consequently, the companies could be better off deciding on a particular strategy: owning more real estate or owning less real estate.

**Originality/Value:**

Investigates if a linkage between a company’s ability to generate a positive EVAM and a company’s quantity of real estate assets exists.
3. Acknowledgement

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4. Introduction

The EVAM ratio is a relatively new financial tool and an extension and enhancement of the well-known and much applied EVA. This academic paper examines the EVAM ratio and investigates if the EVAM could be used in the real estate business to determine if it is beneficial or detrimental for non-real estate companies to own their own real estate. While this investigation solely focuses on non-real estate companies the hope is that this ratio could assist in investment decisions for both non-real estate and real estate companies alike.

Many large and mid-size multinational non-real estate companies own vast amount of assets that are non-core. One of the most capital-intense and difficult to manage of those so-called non-core assets are the company’s real estate. As companies should only acquire and hold assets that help them to maximize the firm’s value, investing large sums in non-core assets could make the company stray from their main business objective. This could be counterproductive to the companies’ overall strategy of investing in projects and assets that provides the best positive NPV. The projects and assets that are estimated to produce the best risk adjusted return are those investments that should be pursued first.

Before making any investment decision companies must consider the financial pros and cons of the proposed investment. If, for example, the cost of an asset surpasses its benefit, it should not be bought; similarly, if a project is estimated to generate a negative cash flow, it should be rejected as it will lower the firm’s value. Corporate Real Estate (CRE), which is defined as the industrial, office and retail space held by an enterprise, which primary business is not real estate investments, is an asset that has to be thoroughly assessed before implemented or rejected by the company as it can have a significant positive or negative impact on the company’s value.

Given that CRE ownership requires large initial investments, ongoing maintenance expenses, constant managing and ongoing strategic planning, to mention a few aspects, the decision to own or to lease real estate is a crucial decision that cannot easily be undone. Though the main criterion to evaluate CRE ownership is from a financial perspective, business and capital market risk can also be included in the analysis to give a multidimensional perspective. The real estate capital intensity and the gross dollar amounts companies have invested in real estate can vary significantly between companies and across industries. Nonetheless, if a sample is taken from any of the world’s global stock markets, there is a high probability that those multinational, non-real estate companies will have significant real estate holdings. For example, a report by Ting (2006) showed that 500 of the largest non-real estate companies in Malaysia had real estate holdings for approximately SEK198.8
billion (RM96.27 billion) (Ting, 2006). That would mean that they, on average, held real estate assets for 400 million SEK each. Nappi-Coulet et al., (2009), made a similar investigation in France, where the authors investigated the Euro amount of real estate the largest 225 non-financial, non-property French firms owned. It turned out that they, on average, held real estate assets for a value of approximately €781.4 million each.

Large CRE ownership has been a global phenomenon that has been present in corporations in America, Europe and Asia. This is somewhat tied to the fact that many corporations view property as a sign of prestige and success (Deng and Gyourko, 2000). Deng and Gyourko (2000) estimates that America’s multinational corporations own well over $1 trillion worth of various property types, which translates into five times the value own by publically traded real estate companies. German and British non-real estate companies are estimated to own CRE of approximately 1,000 billion and 710 billion euro, respectively (Brounen and Eichholtz, 2005). Krumm and Linneman (2001) estimated that Dutch CRE holdings are about €220 billion. Rodriguez and Sirman (1996), Ting (2006) and Nappi-Coulet et al., (2009) estimates that CRE accounts for 25-40% of total tangible assets in the U.S., 24% in Malaysia and 31% in France.

A company that is considering reducing their CRE ownership can partake in a sales and leaseback transaction (S&LB). For companies with existing real estate assets it basically entails that the company sells off their real estate assets to a buyer, and then instantaneously leases the property or properties back from the new owner. This is actually something that has been possible for quite some time. The first documented Sale and Leaseback transaction occurred in the US by Safeway Stores in the 1930s (Rutherford, 1990). The phenomenon is gaining popularity among corporations. A report by CB Richard Ellis (2008) showed that corporate S&LB transactions have grown fast. In 1998, S&LB transactions in Europe alone, reached €1.6 billion; by 2001, it had more than ten-folded, to €16.6 billion and by 2007 it had reached €46 billion (www.cbre.eu/gcs). In order to asses to best possible corporate real estate (CRE) strategy, the Economic Value Added Momentum (EVAM) is used to determine if (CRE) is positively or negatively influencing the companies wealth creating abilities.
5. Problem Statement

To investigate the usefulness of the EVAM ratio from a CRE perspective and to determine if it is favorable or unfavorable for non-real estate companies to own property. While a variety of different models have been used in trying to answer this question, to my knowledge, none has thus far attempted to calculate the benefit and disadvantages from an EVAM perspective.

A majority of the research papers that have been written on CRE tend to look at how a company’s share price is affected by the announcement of a real estate purchase or a real estate disposal. If companies that have large real estate holdings experience a decrease (increase) in its share price after having sold off its real estate, it would have been viewed as favorable (unfavorable) by investors for the company to have owned their real estate.

Even though quite a few reports have been written on the matter they tend to pertain to the U.S or South European companies, including British, German or French corporations and not Nordic companies. There also tend to be large discrepancies between the results within countries during different time periods and between different sectors. It is thus important to make country specific investigation. This investigation will not consider the share price, which relies on both external and internal market assessment of corporate strategies but look at how companies cope internally. For example, a company’s share price can be artificially inflated or deflated due to speculation, a share price repurchase program, by noise traders or other means. Companies’ share price are hardly only based on fundamental aspects but include a portion of technical bias as well, meaning that if a certain threshold is beaten or gone below, the share price can either significantly increase or decrease. This is not due to seemingly any fundamental aspects but rather on physiological factors that in reality does not have any real influence on a company’s ability to generate earnings (Rubinstein, 2001; Jones & Sugden, 2001; Pontiff, 1996; Lamont et al., 2002)

These psychological factors influences peoples’ investment decisions and hence influence the company’s share price. While EVAM is far from perfect it relays less on psychological factors and more on hard facts, most notable a company’s ability to generate long term cash flows.

While a company might experience a lower beta or a boost to their share price after having sold-off their properties it does not necessarily mean that the real estate investment was a poor one; the share price movement might rather have been influenced by psychological factors. That is also why this report is attempting to determine the affect of real estate holdings for a company from a fundamental approach: its earnings results. The five most common and prevailing psychological
factors will be discussed briefly, including the prospect theory, overconfidence, conformation bias, noise traders and escalation bias.

This prospect theory rests on the assumption that people fear losses more than they value gains. In other words, inexperienced investors have a tendency to hold on to declining stocks too long, hoping to recoup their losses, and to sell appreciating stocks too soon. From an individual perspective, this could limit one’s gains and augment one’s losses.

Overconfidence deals with analysts’ tendency to overestimate growth potential for certain stocks and to overestimate good news. The analyst might have been too aggressive in their projections and overconfident in their forecasting abilities and in the market as a whole. People, who follow their advice would more aggressively purchase these stocks and to buy them in larger quantities.

Conformation bias state that people tend to screen for stock news or market data that supports their stock investment and simultaneously overlooks news and share data that would refute their investment rational.

Noise traders make decision base on widely publicized information. They can, for example, base their investment decision on publically available analyst reports, on suggestions from particular news writers’ or some other well-known medium. Consequently, noise traders act on the same set of recommendation and information in unison. Often times though, those recommendations are flawed and the investors end-up losing money on negative stock performances.

Escalation bias pertains to investors’ belief that a stock that has dropped is bound to recover. If they have bought a stock, for say, a 100 dollars and it is currently trading at 75 dollars, the prevailing belief is that it must, at 75 dollars, now be a bargain. Consequently, instead of cutting their losses and selling at 75 dollars a share, they purchase more in order to lower their share average in the hopes of recouping their initial losses rather than to reevaluating their decision and perhaps sell the shares outright.

The EVAM better circumvents these drawbacks by examining a company’s value adding attributes, including earnings result, sales figures and companies’ cost of capital, it is a better tool for determining if corporate real estate ownership has been beneficial or detrimental. This is the case since firms’ financial data is less susceptible to market manipulation or short-term market up or downwards swings.
6. Aim

The aim of this investigation is to determine if companies’ EVAM is affected by the quantity of a company’s corporate real estate. The EVAM is an extension of the Economic Value Added (EVA), a financial tool developed by consultant Bennett Stewart. The EVA is comprised of Net Income + (Net Interest Expense * tax rate) – (Capital Employed * WACC), while the EVAM considers the change in EVA in a given period divided by the company’s trailing sales in that same period. The frameworks main strength is based on the fact that it pertains to the economic profits generated by a firm rather than their accounting profits. If the ratio has been negatively affected by large real estate holdings, it might suggest that companies will be better off selling their real estate; in contrast, if companies that have large real estate holding have experienced a significantly higher EVAM ratio, it might imply that companies are better off when holding real estate.

This is an important issue to examine as CRE ties up a large portion of companies’ total investment potential and often times accounts for a large portion of companies’ total assets. While the EVA has been used before as a mean to evaluate the impact of CRE ownership in both Singapore and France, an investigation on Swedish companies might show a different result (Liow et al., 2004, Nappi-Choulet et al., 2009). Furthermore, it is important to realize that prior research shows that CRE ownership can vary both within countries and within industries. The EVAM is a relatively new concept that has not been ample applied or adopted by many corporations yet. Nonetheless, conceptually, this ratio contains those essential ingredients needed to accurately assess a company’s ability to survive in the long run. As such, there is a high probability that firms will begin to adopt the EVAM.
7. Research Question

Can the EVAM ratio indicate if Swedish non-real estate, non-financial companies have been positively or negatively affected by the quantity of their CRE ownership?

8. Importance

Many academic papers have been written about the potential impact of corporate real estate on corporate earnings. However, my findings indicate that this is one of the first corporate real estate investigations on corporate real estate’s impact on the Economic Value Added Momentum globally. Moreover, this is the first time this type of investigation is performed on the Swedish market. This is without a doubt an important research question as there are more than 3 million properties in Sweden alone (excluding villas and private apartments), holding a combined tax assessment value in excess of 5,700 billion SEK (www.castellum.se, 2010). While publically traded Swedish real estate companies own an estimated 10% of the total real estate market, the bulk of the property market is owned by the Swedish multinationals, private individuals and small private real estate owners. The forty-three companies included in the investigation held about 250 billion SEK worth of real estate assets in 2009.

Country and industry specific investigations are important as discrepancies between different markets exist (Slovin et al., 1990, Allen et al., 1993, Glascock et al., 1991, Rutherford, 1990, Ting, 2006, Grönlund et al., 2008). In 2011, Crosby, Devaney and Law (2011) showed that the Swedish property market is indeed different from other European markets. While property prices fell significantly in the UK and Ireland in 2008, Swedish property prices were less affected by the financial turmoil. Still, though Swedish property prices were quite unaffected (compared to the UK and Ireland), they still experienced larger property declines than both German and the Dutch investors did. Furthermore, in France, people experienced rental declines while Swedes experienced rental increases (Crosby et al., 2011). Given the variability in real estate prices and values across countries, it is important to perform country specific CRE investigations.

It is also important to shed additional light on this complex and important question as to not direct companies in the wrong direction. In Lind and Brunes’ (2008) research work on the Swedish property market, they found that it is becoming increasingly popular for non-real estate companies to perform a S&LB. The concern with this finding is that it might not in reality be beneficial for companies to sell off their real estate; they might simply follow the herd or act upon current market trends rather than to follow sound financial judgment. Consequently, although this behavior might currently be viewed favorably upon by investors, the companies might suffer from this behavior in the long-run.
The purpose of this investigation is also to inform the readers of the importance of managing companies’ CRE assets. For instance, a survey by Arthur Anderson (1993) showed that the vast majority of the executives of large U.S companies did not “feel a need to link strategic real estate planning and business planning” (p. 12). Another report, written in 2001 by Englert, revealed that real estate is the most “taken-for-granted and under-managed corporate asset” (p. 46). For these reasons, the aim of this thesis is also to try and establish better CRE awareness.
9. Theoretical framework

8.1 Economic Value Added

The EVAM is an extension of the Economic Value Added (EVA) developed in the early 1980s. The EVAM was developed by consultant Bennett Stewart, one of the cofounders of the EVA.

The EVA definition:

EVA = NOPAT – WACC * Capital employed
NOPAT = Net Income + Net Interest Expense * (1 – tax rate)
Capital Employed = Noncurrent assets + Working Capital
WACC = E/V * Re + D/V * Rd * (1 – tax rate)
Re = Cost of Equity
Rd = Cost of Debt
E = Market Value of the Firm’s Equity
D = Market Value of the Firm’s Debt

Net Operating Profit after Tax (NOPAT) is comprised of Net Income (NI) plus Net Interest Expense (NIE) multiplied by 1 minus the tax rate. The NIE is simply the difference between a company’s interest income, which accumulates though bank deposits and savings and the company’s interest expense, which arises from banks loans, bond issuances or through other means of borrowing. The weighted average cost of capital (WACC) is used in finance to measure a firm’s cost of capital. It is basically the rate that the company is expected to pay on average to its security holders. The three main components of a firm’s capital structure and hence its WACC, is preferred equity, common equity and debt. The WACC accounts for all the relative weights of each component of the capital structure and presents the expected cost of capital for that particular firm. A firm’s capital employed represents the capital investments needed in order for a business to function. Capital employed can be calculated using two different methods: the total asset minus current liabilities method or the non-current asset plus working capital approach (both should provide identical results).

A positive EVA implies that NOPAT exceeds the company’s cost of capital (WACC) * Capital employed. The relationship shows that a company can attempt to increase its EVA in four ways. The first way in which a company can attempt to achieve a better EVAM ratio is by obtaining cheaper finance. If a company can lower its interest rate cost or its cost of equity a lower WACC could be achieved. A company could also try to lower its cost of capital by finding a more optimal capital structure. Secondly, by utilizing its existing resources more efficiently and effectively, the company can improve its margins and thus its NOPAT. If the company is able to invest in more lucrative projects that earn a higher expected NPV, the EVAM ratio should increase as well. Fourthly, EVAM could be increased by eliminating projects that are earning unattractive yields. Rather than investing the company’s excess
cash in a satisfactory project, because no other alternatives currently exist, the company should wait for superior projects and invest accordingly.

Similarly to the EVA the EVAM can be used as an operational and financial performance measurement. The companies that scrutinize their net operating profit after tax and their opportunity cost of invested capital have been able to outperform the market as a whole as well as their rivals (Anthony & Govindarajan, 2007).

Currently, the EVA is widely accepted and hundreds of America’s largest corporations use the EVA as a management tool, including Eli Lilly, Procter & Gambol, AT&T, Pepsi, Disney and Quaker Oats (Garvey & Milbourn, 2000). It is also gaining momentum in the U.K, where journals such as the Economist has argued for its applicability and benefits (Anon, 1997). There are numerous testimonials, ranging from investment banks and multinational corporations to Nobel Prize winners and CEOs and CFOs, who all speak very highly of the EVA. For example, Salvatore Fazzolari the Chairman & CEO of Harsco had the following to say about the EVA:

This enterprise-wide metric provides a consistent and transparent way to translate strategy into investment decisions and compensate all key managers in the Company based on performance. EVA discipline also drove our restructuring initiatives in the fourth quarter of 2008. As the economic climate deteriorated, we took necessary countermeasures that included rationalizing facilities, renegotiating contracts, amending benefit plans and trimming our global workforce. These initiatives should save more than $50 million per year.

While Credit Suisse had the following to say:

The EVA methodology explicitly addresses business and financial risk and allows the investor to gauge the magnitude and sustainability of returns. Of all financial measures, it best explains the creation of shareholder value.

Though, the EVAM has not been widely adopted yet, it is still a relatively new concept and companies usually need time to research, understand and convince investors, peers and management of its applicability before a new concept have a chance of becoming recognized and adopted. It is also important to recognize that not all scholars and market participants are equally pleased with the EVA. For example, in Pierce-Brown (2000) academic paper, the author stated “that it is probably unrealistic to expect that, in the complex corporate environment of today, it is possible to devise one single performance metric that serves all cases in all situations” (pp. 18). In a report by Griffith (2004), he showed that many corporations were unable to resolve certain financial and operational dilemmas that they believed the EVA model would help them to sort. Lovata and Costigan (2002) also found that “identifying optimal incentives for managers, a focal point of the EVA, appears to be more complex than inferred by proponents of EVA” (p. 256). Finally, Stern-Stewart stated that up to sixty-
four financial adjustments might be needed to be made in order to “eliminate financing distortions” and “eliminate accounting distortions by converting from accrual accounting to cash accounting” (Stewart, 1991, page 91). This is of course both time-consuming and difficult and companies might sometimes get it wrong. Although skeptics of the EVA have emerged, as tend to be the case with any financial measurement or ratio, there are far more supporters of the EVA.

8.2 Economic Value Added

The EVAM definition:

\[ \text{EVAM} = \frac{\Delta \text{EVA}}{\text{Trailing Sales}} \]

Examining the change in EVA and the firms’ trailing sales leads to a fundamental an important modification to the simple (EVA). Increases in sales can be achieved in various ways; however, it might not always positively influence the EVA and lead to an improved EVAM ratio. For instance, by increasing marketing effort, by lowering the price of the product or by introducing a new product sales figures can be improved. At first glance, this might seem pretty straight-forward. However, it is important to realize that if not the addition in sales from marketing efforts, from a lower product cost or from the introduction of a new product, offsets the cost associated with those ventures the company’s net operating income after tax might actually decrease, leading the EVAM to decline. Consequently, managers have to find ways to improve sales while cutting costs and improve margins to have strong growth in the EVAM.

One of the other major strength to the EVAM and which is unattainable by a simple EVA calculation is to compare the EVAM of firms’ of different sizes in different industries. When transforming the EVA into an EVAM, and thus to a ratio format, performance becomes scaled. This allows companies of different sizes to be compared on a fair basis. A bigger company is unable to show better performance results or hide poor performance results. Since the EVA presents performance on an absolute basis, it is problematic to compare a big company, say Apple to a small company. Of course the EVA of Apple will have a higher probability of surpassing the EVA of the small company. The following section, will discuss the benefits as well as the disadvantages of the EVAM.
10. Literature Review

10.1 Corporate Real Estate Theories

The literature review has been divided into two parts. The first part investigates research papers that investigate the impact of CRE ownership from different financial points. The second part looks at academic papers that have applied the EVA framework in different business contexts. This will allow the reader to better grasp the EVA’s applicability and usability.

The positive and negative effects of corporate real estate ownership have been investigated using a variety of approaches. Allen et al., 1993, Glascock et al, 1991, Rutherford, 1990, investigated how U.S stocks from 1980 to 1990 had moved after the companies had announced that they were acquiring corporate real estate assets. Each and every one found that there was a significant positive relationship between the announcement of property acquisition and stock movement. Similarly, a report carried out by Ting (2007) on the Malaysian market, also revealed that a declaration of a property acquisition by a non-real estate company, had a positive impact on the companies’ share price.

The opposite spectrum would be to look at companies’ share price movement after the announcement of a property disposal. If a share price reacts positively to a property disposal, it would basically mean that the market views the transaction as favorable. This will oppose the findings by Allen et al., 1993, Glascock et al, 1991, Rutherford, 1990, who found that stocks reacted positively to the announcement of a property acquisition. The report was carried out by Ting (2006) on the Malaysian market and showed that the market also viewed the announcement of property disposal positively. Although it could be argued that this could be a reasonable phenomenon since the market believes that both the buyers and the sellers would benefit given their different business strategies, it nonetheless shows the difficulty of making any bold claims as to a definite corporate real estate structure. There are also other investigations that show that although a company might have benefited from a property acquisition in the short-run, due to a boost to a company’s share price, it might, in the long-run have had a detrimental effect (Liow & Ooi, 2004; Nappi-Choulet et al., 2009)

Seiler, Chatrath and Webb (2001) investigated if direct real estate investments by non-real estate corporations can bring in any diversification benefits to the company. If this is the case, the companies that own real estate might be able to lower their overall business risk but still obtain attractive returns. The authors use modern portfolio theory to investigate the correlation of direct property investments and share price movements. If investing in properties would provide any
additional diversification benefits, both the systematic risk must decline and the risk-adjusted return must increase. The investigation did not provide any evidence in support of a diversification benefit due to the holding of real estate.

Another method that can be used, and one with is rather similar to the EVA, to determine the effect of corporate real estate, is the shareholder value added (SVA) practice. The SVA consist of NOPAT – (NAV * WACC). If net operating profit exceeds the weighted average cost of capital * Net asset value the company is doing well, i.e., adding value. (Hill, 2003)

Brounen and Eichholtz (2005) analyzed corporate real estate from a global perspective to examine if any particular patterns or international tendencies were prevalent. The researchers used the Corporate Real Estate Ratio (CRER) as a benchmark. CRER is computed by dividing a company’s property, plant and equipment with its total asset base. By comparing the CRER to companies’ stock performance the authors were able to determine, on an international level, if any significant trend existed that would reveal that owning CRE was better than leasing CRE. Brounen and Eichholtz (2005) found that the real estate industry is driven by “industrial rather than national differences and that overall real estate ownership appear to be decreasing over time” (Brounen & Eichholtz, p. 429, 2005).

A different way to analyze corporate real estate ownership is from a takeover perspective. To investigate if, historically, firms with high level of real estate holding are more likely to become takeover targets than firms with low amounts of real estate holdings. For instance, if companies with high level of properties are more likely to be bought, it could mean that corporate raiders believe that, either the companies are doing a poor job managing those assets or those assets are simply undervalued. Many of the financial theories of today would reject such a possibility as many states that stock prices already reflect all current and publically available information. However, in a research paper done in the 1990, it was shown that corporations with large real estate holdings had a higher probability of being acquired (Ambrose, 1990). Apparently, corporate raiders were “aware of the hidden values available through the restructuring of badly managed corporate real estate assets” (Ambrose, p. 312, 1990).

Corporate real estate has also been studied from a franchise point of view. Though certain investigations have shown a negative affiliation between CRE and stock performance (Deng and Gyourko, 2000; Liow, 2004; Brounen and Eichholtz, 2005), Park and Glascock (2010) believe that this association might not hold true in the franchise industry. The authors claim this might be the case since franchise “firms in the retail sector […] have more opportunities than most [other companies]
to create valuable CRE portfolios” as “CRE is more closely and directly linked to the business strategy of retail companies” (Park and Glascock, p. 81, 2010). Moreover, CRE can assist in reducing the agency-principle problem between the franchise and the franchisee as it can decrease the monitoring cost. The researchers found that CRE can indeed provide excess return for companies in the franchise industry.

A research report by Nappi-Choulet et al., (2009) analyze the impact of CRE for non-financial French listed companies on the SBF 250 stock index. The authors’ used an the Economic Value Add (EVA) and the Market Value Add (MVA) to investigate if corporate real estate ownership has had an impact on French companies’ value creating abilities. The investigation revealed that increase proportions of CRE can negatively impact the EVA of companies with low real estate intensity in the service industry, while the change in CRE can negatively impact firms’ MVA outside the service industry sector. This would suggest that companies with low real estate intensity in the service industry could be better off, from an EVA perspective, to reduce their CRE ownership. This might be prevalent as companies in the service industry lacks real estate experience and thus is unable to effectively manage their property holdings.

10.2 Past Investigations

Mittal, Sinha and Singh (2008) investigated the relationship between corporate social responsibility and a company’s profitability from an EVA perspective. The authors attempted to determine if firms that focus on improving and developing their corporate social responsibility (CSR) arm, trying to become more environmental and social conscience, can expect to gain any excess in returns. Given that numerous companies in India have improved their CSR policies and practices over the last few years, the authors try to establish if, apart from having improved their reputation and standing in the community, have experienced any financial gains. The sample consists of 50 companies from the S&P CNX Nifty (Indian stock market) from 2001 to 2005. The investigation is divided between companies who have explicitly stated codes of ethics and conduct in their annual report and those that do not have stated codes of conduct in their annual reports. The result did not reveal that CRS initiatives would negatively influence a company’s business performance; on the other hand, it did neither show that companies who have implemented CRS policies had experienced any positive financial impact.

The EVA can also be used for determining price setting in a monopolistic business environment as to earn zero Economic Value Added profits. When the Airways Corporation of New Zealand (ACNZ) was set-up, it soon became apparent that the company was a natural monopoly. In order to avoid
governmental pricing controls, which former governmental firms’ had experienced, including port companies and electricity distribution companies, ACNZ adopted the EVA framework as to ensure that their prices were set so as to obtain an economic value equal to zero. By adopting this strategy the company could provide “limitations on earnings and wealth creation for monopoly owned assets and investments” (Lloyd M. Austin, p. 139, 2005). Because the company made use of the EVA and was able to accurately managed and benchmark its performance and earning result, the firm was able to avoid pricing controls and achieve financial stability. This again shows the multiplicity of the EVA and why it could be a good CRE tool.

Another EVA report was written on EVA’s ability as a capital budgeting tool. The author suggests that the Economic Value Added framework is not solely applicable for for-profit organizations but could also be used to more efficiently manage non-profit organizations, such as universities. Not surprisingly EVA is less known in university settings since oftentimes the main goal of universities are not to create profit for shareholders. However, similar to for-profit organizations, universities has to make do with limited resources, and hence, efficient resource allocation plays an important role in a university environment as well. “Unfortunately, most universities rarely use management tools, as most of these are designed for for-profit organizations; this is also true for financial management tools such as financial ratios” (Rompho, p. 2, 2009). The EVA research was carried out on the Thammasat University in Thailand. The study showed that certain programs provided a negative EVA and that the university would be able to improve their value by focusing on a couple of the university’s programs and by eliminating others. Although it might not be, in reality, feasible to eliminate certain programs, the research can help to reveal where improvements and adjustments have to be made.

Pohlen and Goldsby (2003) analyzed the affect supplier managed inventory (SMI) and vendor managed inventory (VMI) can have on wealth creation for a firm from an EVA perspective. The two programs “involve coordinated replenishment of materials inbound to manufacturers and finished goods outbound to merchandisers” (Pohlen & Goldsby, p. 565, 2003). Even though a company that improves their integrated supply chain in a coordinated manner can enhance customer loyalty and reduce their supply chain costs, convincing companies of their importance have been a difficult task. However, by combining the EVA framework with the SMI and the VMI frameworks, the authors were able to show manager how they can decrease VMI and SMI costs and enhance asset utilization and hence improve the company’s margins. By applying the EVA concept, and making a linkage between VMI, SMI and actual cost savings, managers would be more willing to adopt changes. Although this linkage is between VMI, SMI and EVA, if a similar linkage between corporate real estate and value
creation from an EVAM perspective can be established, it could help corporate managers to make the right property decision.

The Economic Value Added can also be used as a framework to formulate portfolio strategies. There has been a common practice to evaluate portfolio returns from an earnings-price ratio (EP) and a book-to-market ratio (BM). This has been the case as these two approaches have proved to generate significant abnormal returns. The Economic Value Added approach, although increasingly gaining momentum in a variety of fields, has been partly ignored in researching portfolio performance. Leong, Pagani and Zaima (2009), investigate portfolio performance from an EP, BM and EVA perspective from a 10 year timeframe. The investigation is carried out from 1995 to 2004 and includes a sample of 634 to 892 firms. The research showed that the best performing portfolios would have been the one applying the EVA model. This again shows the width of the EVA and why it could be a good tool to assess the corporate real estate.

The second part of the literature review has been used to show the applicability of the EVA. Given the close proximity of the EVAM to the EVA, the EVAM might also prove to be a widely applicable tool. This gives rise to the idea that EVAM might be a useful tool in assessing the impact of CRE and a firm’s wealth creation abilities.
11. EVAM Analysis

As previously mentioned, one of the main drawbacks of the aforementioned ratios are that they are derived at by using reported accounting profits rather than economic profit. The EVAM reduces this problem by deducting a charge for the company’s capital employed. Put another way, the EVAM assigns a cost for the use of debt and one for the use of equity. The EVAM “doesn’t begin to count profit until shareholders earn at least the return on capital they could expect to earn elsewhere at the same risk” (Stewart, pp. 75, 2009). When companies pursue NPV projects that have a positive risk adjusted return the EVAM is positive; if a project has an initial positive NPV, but a negative one once the cost of capital have been assessed, the EVA will be negative. This might not be the case when judging a NPV project on the basis on Return on Asset (ROA) or Return on Equity (ROE) as the risk components of the project is not accounted for in those ratios. While accounting rules states that outlays for intangible assets oftentimes should be expensed, EVA encourages such measures to be capitalized (if deemed sensible). This in turn will allow managers to use their experience and knowledge to assess if an item should be expensed or capitalized rather than to follow rigid accounting standards that are many times based on particular rules and certain regulations rather than anchored in an economic reality.

Companies should pursue long term rather than short term profits. In a survey performed by Graham, Campbell and Rajgopal (2005), they found that 80% of the CFOs would cut research, advertising and maintenance expenses in order to reach short-term earnings goals. As research and advertising expenditures might be essential for a company to continue to grow and prosper in the coming years, this strategy could be counterproductive to a company’s long-term goals. This again shows the shortcomings of the ROE and the ROA ratios. Obviously, though it is difficult to make adjustments for the whole spectrum of accounting distortions, the adjustments will still more accurately reflect the company’s cash flow generating abilities.

The EVAM ratio is a measure which could help in maximizing a firm’s value. Companies must not only pursue ways to increase their sales figures but they must also find ways to improve their margin, lower their WACC and increase their asset utilization over each period in order to continue to have a positive EVAM ratio. This makes it less liable for manipulation and would assist managers in taking decisions that would have a positive impact on the company.
The size of the company does not impact the EVAM ratio. When transforming the EVA into EVAM, and thus to a ratio format, performance becomes scaled, enabling it useful when comparing businesses of different sizes. Consequently, the EVAM ratio can be used to compare the wealth generating abilities of a huge company such as Coca-Cola to a smaller company, say, Cloetta.

The EVAM is situation-neutral. The EVAM is based on changes in economic profit over time rather than on an absolute level. This makes it useful when comparing companies across industries and when analyzing companies with different levels of brand recognition. A company, say like Pepsi gets no overarching benefit over a weaker brand, as the value of those assets is already reflected in the EVA the company earns. Another strength of the EVAM is that companies have to continuously perform well in order to obtain a positive EVAM over time. Managers constantly have to find ways to improve sales, cut costs and innovate, to obtain a positive EVAM, leaving little room for companies to rely on past success. Also, as the EVAM only values an asset once and penalizes a corporate mistake or blunder once, it is a strong tool for management to use across different business division within the company. It can thus assist in resource allocation and investment tactics.

Spotting problems and determining good investment policies. The EVAM can reveal, for both small and large corporations, if they are underperforming and hence their EVAM is declining in comparison to competitors or compared to previous years’ performances. The EVAM can be declining due to declines in the company’s market share, due to a maturing industry, or due to increased intensity among competitors. It can also reveal if new player or existing firms are on the right track and have been able to mend their business by showing positive EVAM numbers. This could be achieved by comparing existing investments to their cost of capital. For the attentive manager it can help them to determine favorable or unfavorable market or business trends prevalent in the market.

The EVAM is a difficult ratio to maintain. A research paper performed on the U.S Russell 3000 from 1995 to 2007 showed the median EVAM return for the entire population was only 0.3% (Stewart, 2009). The researcher also found that only the top 50 percentile of the companies included in the Russell 3000 had an average return that was positive. Moreover, the bottom 25 percentile had an average negative return of 2.1%, while the lowest 10 percentile had an average negative return in excess of 12.0%. The difficulty of keeping a positive EVAM over an extended time period lies in its multiversity. Companies must increase their sales and improve their margins while reducing their cost of capital. Furthermore, companies are unable to rely on past success to keep their EVAM high and positive, but must continue to find and invest in good projects.
In order for a company to have any chance of sustaining a positive EVAM, companies must not overpay for acquisitions, and be able to continue to innovate and expand. Companies that are able to continue having a positive EVAM have a bigger chance of being competitive. For instance, in an article by Geoff Colvin in CNNMoney.com, he found that the top EVA Momentum performers had an EVAM of 24.3% (Gilead), 22.7% (Google) and 12.1% (Apple). During that timeframe Google sales increased by 760%.
12. Ratios

Basically, all the large cap and mid cap companies in the Stockholm Stock Exchange (OMX) uses different ratios in order to assess their performance. Regardless if companies are in the real estate industry, the banking industry, the production or technology sectors, the firms tend to look at the same set of ratios. This part will provide an overview as to some of the most commonly used Swedish ratios, provide some information as to some of their pros and cons and compare them to the EVAM ratio.

The most commonly used ratios by Swedish corporations include the Return on Equity (ROE), the Return on Asset (ROA) and Return on Capital (ROC) ratios. Unfortunately, these ratios are more one-dimensional and more easily manipulated. If, for example a manager is solely focusing on sales growth or profit margins, they are going after a single performance measurement. A company can simple improve sales growth by cutting the price of the product. This might translate into higher sales figures but ultimately to lower profit margins as the company is earning fewer dollars per sold product. Similarly, if a company is only focusing on improving profits margins, it might come at the expense of a diminished product quality, a lower sales volume or slower growth, and thus, eventually to a long-run decline in profitability. Furthermore, the ROE can be enhanced by taking on additional and sometimes unhealthy amounts of debt; the ROA can be improved by having a low asset base. The question also arises as to what is a good sales turnover; what is a good profit margin; what is a good capital structure? Certainly, companies can always argue that as long as they are beating the competition they are doing well. However, perhaps the industry in which they are in is in a decline and the competitors have done miserable. In reality then, they are not doing well they are simply not doing the worst and they could still go bankrupt.

The EVAM combines numerous financial aspects, including margins, cost of capital and sales. It is thus less easily manipulated and could provide managers with a better overall picture of the company’s financial results. The EVAM incorporates the cost of capital and thus a capital market hurdle rate. This in turn leads to three important implications: Firstly, companies that operate in a riskier industry such as the IT, technology or electronics market will have a cost of capital that surpasses those companies that operate in safer industries such as the food, beverage and utility industry. Secondly, the EVAM provides companies with a ratio that is easy to understand and interpret. If the EVAM is zero, the company is just able to earn a return that is demanded by investors. If EVAM is negative the company is failing to deliver a satisfactory return to investors. In
comparison, if the EVAM is positive the firm is able to produce a return that exceeds the investor demand and thus the companies can rest assured knowing that they are performing well.

The EVAM has some major advantages and lacks those specific flaws that make conventional ratios manipulative and sometimes unreliable.

13. Market Cyclicality

In an attempt to retrieve the best possible data, the observations have been taken during two periods of economic expansion and two years of economic contraction. This was done as companies in different industries and sectors are to different degrees influenced by the state of the economy. Basically, some companies are more affected by the state of the economy while others are less influenced by the economic conditions. Though the EVA Momentum is not directly tied to the company's share price it is indirectly related to a company's fundamental share movement. If a company's share price, not due to technical reasons, but rather due to fundamental reasons, decreases or increases, the EVA Momentum will be affected.

A company's share price and its market capitalization are thus affected by the future earnings potential of a company. If a company during good economical conditions projects high net incomes, its market capitalization would probably rise. On the other hand, if a company is revising and lowering its earnings results due to an economical downturn or increased competition, its market capitalization will drop. The lower sales figures and most likely, earnings result, will negatively impact the company's EVA and EVA Momentum. Consequently, depending on a company's stock characteristics or its business composition, the stock and ultimately its EVAM, will positively or negatively be affected by the economic outlook. Companies and their stocks can be divided into five different categories which would explain the type of expected market cyclicality. The five categories include growth companies and growth stocks, defensive companies and defensive stocks, cyclical companies and cyclical stocks, speculative companies and speculative stocks and value stocks. Though the companies in this analysis will be divided upon based on industry and business area rather than business cyclicality, the result would most likely be similar as the companies in comparable industries usually faces the same set of threats and opportunities and thus often moves in conjunction with each other. It is thus essential to understand the difference in sensitivity in cyclicality between companies in order to understand how their short-run EVAM can be influenced.
A growth company is presented with investment opportunities that produces rates of return on the investment that surpasses the companies weighted average cost of capital (WACC). Growth companies are predicted to increase their sales and earnings result quickly. They are, however, sensitive to changes in the market conditions, with less reliable income streams, and could quickly see their income stream diminish. (Capaul, Rowley, and Sharpe, 1993).

Defensive companies are companies that are expected to continue to have good earnings result even when the economy enters a recession. Their returns will oftentimes outperform other stocks during market decline and they often have low or even negative betas.

Speculative companies are those companies that pursue business ventures that contain the highest risk. These stocks, compared to their existing earnings result, could be thought of as being overvalued, trading at very high P/E multiples. Many of these stock fails, but when successful can produce incredible returns. Companies in this segment include oil and mining stocks as well as innovative biotech and technological companies.

Cyclical companies are influenced by the aggregate business cycle; during economical expansion, cyclical companies experience high profits, while they are likely to produce unfavorable earnings results during economical contractions. Cyclical stocks tend to be volatile and have higher betas (above 1). Brooks et al., (2000) analyzed the cyclicality of property market aggregates in relation to the property stock price and found that property prices move in conjunction with real GDP growth, real consumer expenditure and real consumer expenditure per capita. This in turn would indicate that real estate stocks are procyclical, experiencing high earning results during economical expansions.

A value stock is a stock that has a low price-to-earnings ratio and a low price-to-book ratio. Generally, they can be categories as having higher financial leverage and higher uncertainty in regards to their future earnings potential. As a result, these companies usually performance poorly during economic downturns.

As a result, certain companies could actually benefit by holding real estate during economic downturns while others would suffer. From a low risk (diversification) perspective, the companies that would enjoy the best benefits from holding real estate are those companies that sell a product or offer a service that is countercyclical. This would be the case as real estate is considered procyclical. On the other hand, a company that has a procyclical business activity and own real estate would be able to augment their earnings and boost their balance sheet (as real estate can be written-up) during economical expansion. However, the procyclical company would increase their overall
business risk and become less diversified. Consequently, the companies’ four year EVAM result could be positively or negatively skewed depending on the market conditions from 2006 to 2009.

14. Methodology

This academic paper will investigate the usefulness and applicability of the EVAM for non-real estate, non-financial large cap and mid cap companies on the Stockholm Stock Exchange (OMX). The financial data will be collected from each individual company’s financial statements from 2005 to 2009. The data collection will include both data from the companies’ income statements and balance sheets. The figures gathered from the income statement includes sales, net interest expense, operating and EBIT figures as well as EBT and Net Income numbers. In reality, the net interest expense figures does not need to be collected as the difference between Earnings Before Interest and Taxes (EBIT) minus Earnings Before Taxes (EBT), should provide the correct interest expense figure. However, to insure the reliability of the numbers, both the net interest expense figures and the EBIT – EBT calculation has been performed. The companies’ tax rate is calculated by subtracting Net Income (NI) from EBT and then dividing the derived number by the NI. The tax rate for certain years can sometimes be substantially higher or substantially lower. This can depend upon a discontinued operation, a certain and particular sale, a write down, an investment in a non-taxable governmental bond (although non-taxable governmental bonds are currently unavailable in Sweden, they can always be issued abroad). Since this is not a reoccurring phenomenon, the real tax rate for that year have been either calculated differently, collected from the company’s actual real tax rate, or been calculated as the average of the previous or/and subsequent years tax rates.

The data collection from the balance sheet includes property, plant & equipment (PP&E) gross and PP&E net. The difference between PP&E gross and net is that PP&E net is derived at by taking PP&E gross and subtracting the accumulative depreciation expense. Total assets, total liability and total debt have also been gathered. Total assets are usually divided between current and long term assets. Current assets include those items that are expected to be converted into cash within one year such as inventory, account receivables and short term securities. Long term assets, for example, are those assets that are expected to be held for longer than a year, including land & building, machinery, plant and equipment as well as goodwill. Furthermore, current assets, current liabilities, intangible assets and goodwill, and total real estate and land holding have also been gathered. In comparison to current assets, current liabilities are those debts and obligations that are maturing within one year and have to be paid. By having gathered the previously mentioned data, total equity, working capital, non-current assets and capital employed can be calculated. Total equity is simply reached by taking
total assets minus total liabilities. Working capital is the difference between current assets and current liabilities while a non-current asset is the difference between total assets and current assets. Finally, the companies’ capital employed is either taken from the companies’ annual reports, if provided by the companies or calculated using the information gathered from the balance sheet. The currency denomination is Swedish Crones (SEK). A currency conversion has been made for those companies that report in a different currency denomination than Swedish Crones. The applied currency exchange rate has been the average exchange rate per month for all of the twelve months divided by 12 in order to reach the average yearly exchange rate. For AstraZeneca, ABB and Autoliv the exchange conversion has been made from Dollars to Crones, while the exchange conversion for Nokia and Stora Enso has been made from Euro to Crones.

The next step in the analysis is to establish the Economic Value Added Momentum. The computation is threefold:

1. The trailing sale for each particular year is determined both for the individual company and for the category as a whole.
2. The change in the Economic Value Added percentage is determined for each company separate and jointly (set by category).
3. The trailing sales figure is divided by the change in the Economic Value Added in order to reach the Economic Value Added Momentum.

A positive EVAM implies that NOPAT exceeds the company’s cost of capital (WACC)* Capital employed and that its sales are growing. The relationship shows that a company can attempt to increase its EVAM in five ways (Liow & et. al., 2008). The first way in which a company can attempt to achieve a better EVAM ratio is by obtaining cheaper finance. If a company can lower its interest rate cost or its cost of equity a lower WACC could be achieved. A company could also try to lower its cost of capital by finding a more optimal capital structure. Secondly, by utilizing its existing resources more efficiently and effectively, the company can improve its margins and thus its NOPAT. If the company is able to invest in more lucrative projects that earn a higher expected NPV, the EVAM ratio should increase as well. Fourthly, EVAM could be increased by eliminating projects that are earning unattractive yields. Rather than investing the company’s excess cash in a satisfactory project, because no other alternatives currently exist, the company should wait for superior projects and invest accordingly. The change in sales is also an important ingredient in the EVAM calculation. Increases in sales can be achieved in various ways. For instance, through increases in marketing, by lower the price of the product or by introducing a new product. At first glance, this might seem pretty straight-forward. However, it is important to realize that if not the addition in sales from marketing efforts, from a lower product cost or from the introduction of a new product, offsets the
cost associated with those ventures the company’s net operating income after tax might actually decrease, leading the EVAM to decline.

15. Diversification

One argument for CRE ownership for non-real estate companies has been that it can create certain diversification benefits and provide financial relief during periods of financial difficulty. On the other hand, certain academics also argument against this notion stating that it can in reality augment companies’ losses. This rests on the fact that the value of the company’s real estate holdings can drop during difficult financial times; it might also be easier to terminate a real estate contract than it is to sell one’s real estate holdings (Golan, 1993). This notion is of course debatable as a real estate contract can seemingly be as solid as real estate ownership. What can be said though is that a company that has no real estate holdings do not have to suffer the heavy losses associated with selling real estate during financial and economic turmoil. Moreover, if the company is looking to diversify its business and believes that real estate holdings have some kind of built-in countercyclical attributes, there might be easier ways to achieve this than investing in real estate; an approach that could be more cost effective and transaction friendly. One of the main points that can be used both for and against CRE ownership is the altering affect it can have on companies’ capital structures (Roden & Lewellen, 1995; Fama & French, 1998; Champion, 1999; Simerly & Li, 2000; Baker & Wurgler, 2002; Hadlock and James, 2002). Given the size of a real estate transaction and the momentous impact real estate could have on a firm’s capital structure, capital structures will be discussed in more length in the following section.

13.1 Capital structure

A real estate acquisition could alter a corporation’s capital structure. A property acquisition is usually of a larger monetary nature and is most often associated with the issuance of debt or financed with some other interest bearing liability. Few real estate purchases are financed with 100% of equity. This in turn could alter the company’s overall capital structure and from an investor perspective make the company riskier. The affects of altering a company’s capital structure have been ample discussed by the financial community and various academic papers have been written on the matter (Roden & Lewellen, 1995; Fama & French, 1998; Champion, 1999; Simerly & Li, 2000; Baker & Wurgler, 2002; Hadlock and James, 2002). One of the earliest and most famous academic papers was written by Modigliani and Miller in 1958 and held that if certain criterions were fulfilled, including a perfect capital market, homogenous expectations, no transaction costs and a tax-free economy, a firm’s capital structure would not affect the value of the firm. Many researchers believe that these
restrictive and rigid assumptions do not accurately reflect the real world and has led to further research within this area. One well-known research paper, which contradicted Modigliani and Miller findings were presented by Jensen and Meckling (1976). It showed that a firm’s equity/leverage relationship can affect the agency relationship between managers and owners and encourage managers to act in their best interest rather than in the best interest of the shareholders.

“The existence and size of the agency costs depends on the nature of the monitoring costs, the tastes of managers for non-pecuniary benefits and the supply of potential managers who are capable of financing the entire venture out of their personal wealth. If monitoring costs are zero, agency costs will be zero or if there are enough 100 percent owner-managers available to own and run all the firms in an industry (competitive or not) then agency costs in that industry will also be zero” (Jensen and Meckling, p. 34-35, 1976)

Since Jensen and Meckling’s report (1976) numerous studies with the aim of examining the relationship between a firm’s capital structure and its performance have been conducted. The results have been both varied and contradictory. An investigation analyzing leverage buyouts by Roden and Lewellen (1995) showed that the acquirers’ capital structure is affected by the target firm’s tax rate, earning volatility and growth rate. Roden and Lewellen (1995) basically found that factors such as a company’s size, firm risk and profitability does impact a company’s capital structure and consequently that a positive relationship between a firm’s profitability and its amount of debt exists. Furthermore, Champion (1999) also found that leverage is beneficial, concluding that firms that take on additional debt can improve their performance metrics. Hadlock and James (2002) investigated 500 U.S. firms from 1980 to 1983 in order to study the preferred choice between bank financing and public securities. The study showed that companies preferred debt financing as they expected that that option would bring them higher and better returns.

Research papers that found a negative relationship between leverage and performance, among other, includes findings by Fama and French (1998), Simerly and Li (2000) and Baker and Wurgler (2002). In an academic paper by Fama and French (1998), the authors investigated stocks from 1975 to 1995 in variety of countries including, among others, the U.S, Japan, Germany, Italy, and the U.K. The investigation revealed that value stocks have higher returns than growth stocks. Out of the thirteen major markets that they investigated, twelve showed that value stocks outperformed growth stocks. Value stocks are defined as firms that have high book-to-market-equity, earnings-to-price or cash-flow-to-price. Value stocks, on average, were less leveraged than growth stocks, and had higher returns since the market undervalued value stocks (distress stocks) and overvalued growth stocks. Baker and Wurgler (2002) also supported Fama and French findings. They established that firms with lower leverage tended to raise capital when their valuations were high, measured by
the market-to-book ratio and that companies that were more highly leveraged raised additional capital when their market valuations were low. Baker and Wurgler (2002) found that leverage had a strong negative impact on a company’s market valuation. Quite simply, if investors believe in these findings, that the benefit of holding debt does not surpass its disadvantages, they should assigns a discount to the valuation of firms with higher leverage. This would contest firms’ against taking on additional levels of debt to finance property acquisitions.

In 1963, Modigliani and Miller released an academic paper that revealed that since interest payments had tax sheltering properties more debt financing would increase a firm’s tax savings ability and thus increase a firm’s value. However, this line of thought would imply that the ultimate capital structure is 100% debt. This result contradicted their earlier findings (Modigliani and Miller, 1958) and resulted in numerous research reports by a variety of academics and professionals whom attempted to find an optimal corporate structure. Some of the findings have previously been discussed in this section.

This debate is an important one as it both shows the pros and cons of owning real estate for corporations from a capital structure point of view. Both academics and professionals are disagreeing as to the ultimate capital structure and how much leverage a company should take on; some claim it is beneficial for firms to be highly leveraged while others argue for its disadvantages. However, one thing they all agree upon is that higher leverage translates into higher risk. A company that is highly leveraged but has its debts tied to its core business might be better off than a company that is less leveraged but has most of its leveraged tied to its non-core business activities. The company with less leverage might in reality then be a riskier investment. This is of course one of the main points against owning real estate for non-real estate companies as it many times forces them to take on additional debt and make large investments in areas where they lack expertise and experience.
16. Cost of Capital

This section will in more length discuss one of the more important attributes of the EVAM calculation, namely the company’s cost of capital (WACC). A company’s cost of capital can be significantly altered depending on a company’s debt and equity weights. Debt financing is considered a cheaper source of finance as it both has tax sheltering properties and because debt investors have prior claim to corporate assets in cause of a corporate bankruptcy than do equity investors. Given that real estate is capital intense, a company often times (unless large amount of cash rests on a company’s balance sheet) has to take on additional debt or raise additional equity to finance a real estate purchase. This could alter a firm’s capital structure and elevate the company’s cost of capital. Given the impact real estate can have on the company’s cost of capital, the cost of capital will be discussed in more detail.

The cost of equity figure is one of the most difficult figures to accurately determine and one which can have a tremendous impact on a companies’ EVAM result. Within the cost of capital calculation, the hardest portion lies in calculating a firm’s cost of equity. There are various methods in existed, all of which have their own take on how to best compute a firm’s cost of capital. In the last couple of decades, numerous cost of equity calculations have used. The less common methods include the prospect divided yield, the prospect earning yield, past return on stock, interest rate on loans, interest earning yield, return on capital employed, return on marginal project, dividend yield plus growth while the more common approach includes the capital asset pricing model (CAPM). In this academic paper the CAPM model has been used to determine companies’ the cost of equity. Each approach has its own set of strengths and weaknesses. The less common methods will only be discussed briefly, while the most common method (CAPM) will be discussed in more length.

14.1 WACC methods

If companies consider the required return on equity as an instant cash cost needed in servicing an issue of shares, they would claim that the cost of equity is the prospect dividend yield (annual dividends per share/price per share). Dimson and Marsh (1982) argue that this is not the best approach as investors usually take on stocks in anticipation of receiving a growth in dividends or/and a capital gain. Consequently, this practice would understate the cost of equity.

Another approach that companies apply so as to establish their cost of equity is the prospect earning yield. When applying this approach companies compare the price/earnings (P/E) ratio of different companies to find the correct equity cost. The P/E can be calculated by either dividing a company’s market capitalization with its net income or its share price by its annual earnings per share (EPS). The
underlying theory is that companies that have higher P/E ratios would have to sell a lower portion of its income compared to companies that have lower P/E ratios to raise the same amount of funds. The main misconception with this approach is that when companies are trading with a higher P/E ratios, it usually means that investors believes that the future growth prospect of those companies are better than companies that are trading at lower P/Es.

Another approach is for companies to set a rate of return on their equity that is equal to last year’s historical share price return. The main difficulty with this method is that historical performance is not necessarily a good indicator of future share performance.

The return on capital employed relies on a company’s book values to determine the right cost of equity. This theory suggests that the cost of equity should surpass a company’s or a division’s book return on investment or its return on capital employed (Dimson and Marsh, 1982). As previously discussed, one of the main drawback with this technique is that the company and investors are depending upon easily manipulated accounting data when calculating its cost of equity.

A company that makes use of the return on marginal project theory would rank all possible projects from least to most attractive and begin investing accordingly. Basically, this will entail that the most attractive projects will be pursued first and the less attractive projects will be undertaken in descending order until all funds are depleted. Many of the less attractive projects will not be embark on as financing might already be exhausted. At first glance, this might look like a feasible way to evaluate projects. However, the return on marginal project does not equal to a company’s cost of capital. Consequently, even the project that has the highest ranking and hence the best return on marginal projects might have a return prospect that is below the company’s required cost of capital.

Companies’ that believe that they will not need to raise any equity in the foreseeable future might be inclined to calculate the cost of equity as the cost of interest payments on loans. If a project will be 100% financed with debt, this might, at first sight, be an accurate assumption. The problem lies in the default risk. If the project is unsuccessful, the bond holders will be the first ones to be reimbursed while the shareholders will take the major blow. The main risk still lies with the shareholders.

The more accepted and widely used method to evaluate a company’s cost of equity is to use a company’s dividends yield and a particular growth rate as benchmark (Dimson and Marsh, 1982). The method is more aligned with today’s modern approach. However, there are two main drawbacks with this technique. Firstly, the growth rate has to be projected; secondly, it refrains from putting a premium on riskier project and a discount on less risky projects.

14.2 The CAPM
The most common approach used today in determining a company’s cost of equity is the CAPM technique. Though it is the gold standard used by most business today, it was actually developed as early as in the 1960s by Sharpe (1964) and Lintner (1965). The two scholars basically related the expected return of a single stock to the measure of its systematic risk. In comparison to the predecessors, the CAPM embraces the notion that risk too has to be accounted for in the cost of equity model. The other models have thus far ignored the concept of risk. The first component of the CAPM is the risk free rate. The rate of return for the risk free rate is what one should expect to earn when holding a risk free investment (also includes the risk of default). The second component of the CAPM is the beta ($\beta$). The beta is quite simply a share market risk. The higher the beta the riskier the stock and the higher the market risk. For example, if a stock has a beta of 0.5, it will only move 0.5% up (down) when the market moves 1.0% up (down). In contrast, if a stock has a beta of 2.0, it will move up or down approximately 2% for every 1% movement in the market. Thus the stock that has a beta of 2.0 is a riskier investment than the stock that has a beta of 0.5. There is of course a second component of risk, the so-called specific risk. This risk has nothing to do with the economy as a whole or the general market but rather with company specific events that could affect its profitability. This can range from equipment failure and product delays to local labor conditions and environmental hazards. However, this risk should not be taken into account in the beta calculation as company specific risk can be eliminated by diversification (Galagedera, 2007). Conceptually, the CAPM calculation would look as follows:

$$\text{CAPM} = \text{risk free rate} + \beta \times (\text{expected market return} - \text{risk free rate})$$.

However, like most models it is not perfect and has been rejected under certain conditions and during certain research investigations. For example, Bos and Newbold as well as (1984) Faff and Brooks (1998) found that since beta is unstable overtime the CAPM could be under or overestimated during particular timeframes. Consequently, the WACC could thus be over (under) estimated, providing a higher (lower) and unfair market value of the company or/and their real estate holdings. Furthermore, Roll (1997) established that when the applied portfolio is inefficient it can produce an insignificant relationship between risk and expected return. Although it is beyond the scope of this investigative research paper, certain modified CAPM models have transpired, including multifactor models, the CAPM with higher order systematic co-moments and time-varying volatility models (Galagedera, 2007). These models might sometimes be a better fit than the single CAPM model when calculating a company’s cost of equity.

A company’s capital structure can affect a company’s profitability and default risk. Since real estate investments by nature tend to be larger in size, companies, whose core business is not real estate
investment, should be cautious before making real estate investment as there is a good chance that a property deal could alter the firm’s capital structure.

17. Motives

The two parts of this section will discuss differences in contract types as well as the pros and cons of renting properties versus leasing properties. The first part has been set-up as to illustrate the different options available to a corporation that decides to divest its real estate holdings. It will discuss the advantages and disadvantages of each approach and how it can affect a company’s balance sheet and financial ratios. The second part was establish as to show under what conditions property ownership could be preferable as well as two show under what situations property rentals could be beneficial. This section is a supplement to EVA and EVAM sections as it attempts to shed light on additional CRE aspects (rather than only financial ones).

15.1 Contract types

Over the last decades, the leasing market has grown in complexity and size. Companies can lease anything from machinery and equipment to cars and property. The two main categories of property leases are divided between financial and operating lease. The differences between the two lease types are vast and can truly alter the composition of a company’s balance sheet. The main distinction is that a financial lease has to be presented on the lessor’s balance sheet, while an operating lease is not required to be presented on the lessee’s balance sheet. This in turn would mean that companies that employ (if possible) an operating lease are usually able to show better asset utility ratios and profitability ratios than a company that uses a financial lease. This is the case as the value of the balance sheet of two identical companies (the only difference being there lease type), would be lower for the company that employs an operating lease. The companies’ numerators would be the same but the lower denominator for the company that employs the operating lease would translate into better asset utility and profitability ratios.

In a financial lease, the payment consists of both a rental and amortization component. The time horizon for a financial lease compared to an operating lease is longer (Lyon, 2010). The operating lease, which is also a contract with a shorter rental period, is allowed to be off-balance sheet since it shifts the operating and management of the property to the buyer and thus transfers the risk from the seller to the buyer.

There are additional aspects that can make a lease contract more attractive. A lease contract can for example include different beneficial clauses. One common and oftentimes beneficial clause is the
embedded call option. The call option would be beneficial if the property has, during the lessee’s holding period, appreciated in value. Basically, at the end of the contract period, the lessee can purchase the property at below its real fair value and then resell it at a higher and favorable price to the market. There also exist other favorable clauses, including the tenant termination clause, the extension clause and the re-rental clause. The tenant termination clause, essentially allows the tenant to eliminate the contract at a given time or during a range of time intervals (Lind and Brunes, 2008). The extension clause permits the tenant to extend the rental contract (Lind and Brunes, 2008). For an extension clause to be more advantages for the tenant, it would permit the tenant to prolong the contract at the current rent level. The re-rental clause authorizes the tenant to rent the property or part of the property to a third party.

15.2 Renting motives

Before deciding whether to lease or to buy companies have to consider some additional aspects. For example, if the company is uncertain as of the accuracy of the location or the time horizon, it might be beneficial to lease rather than to own. If the time horizon is shorter, the property transaction costs might outweigh the expected savings associated with lower rental payments (Lind & Lundström, 2010). Furthermore, as it is difficult to hedge against property devaluation, the company’s default risk could increase. Also, while rental payments of leases are fixed, interest payments often are not (Lind & Lundström, 2010). Consequently, during climates when interest rates are increasing, interest payments would increase and lower a company’s earnings potential. This could raise a company’s business risk and make earning result more cyclical. As many companies lack property acquisition and disposal experience, there is a chance that the property purchases and sales or ill-timed. Basically, the properties might be purchased during highs and sold during lows and thus fatally hurt companies’ earning and growth potential. If the tax effect of the rent payments is higher than the effect of the loans and the depreciation of the building, renting would be beneficial. Of course the reverse relationship also holds true.

Academics and professionals also argue that companies lack managerial skills and time to effectively manage their real estate holdings. For instance, retailers such as Sainsbury, Tesco, Marks and Spencers, Kingfisher, Carrefour and Metros have been selling off their property portfolios over the past few years, stating the need to focus their time, effort and resources on their core business activities (Liow & Nappi-Choulet, 2008). By liquidating a company’s real estate investments, the company can reduce its debt level, leading to lower interest payments or invest in new business segments. The cash proceed can also be used to repurchase outstanding shares of capital stock or
distribute dividends to shareholders, two concepts which have historically been viewed favorably upon by investors (Ting, 2006).

18. Research Design

The sample is comprised of non-real estate, non-financial companies from the Stockholm Stock Exchange (OMX) large and mid capitalization index. The large cap segment includes firms with a market cap in excess of 1 billion euro, while the mid cap segment includes companies that have a market cap above 150 million euro but below 1 billion euro. The large cap sector includes 57 companies whereas the mid cap sector includes 80 firms. After having excluded both real estate and financial firms the sample reaches 43 companies or approximately 31% ((43/(57+80))) of the total population. The data has been gathered from 2005 to 2009 and most graphs and figures are presented for that 5 year time frame. However, the EVAM analysis have been made from 2006 to 2009 in order to include two periods of economic expansion and two periods of economic recession. The assessment has been that given that the composition of the different companies, i.e. some being growth companies, while other companies are defined as defensive or value companies, the most fair technique to assess the companies EVAM would be to have equal number of periods of economic expansion and of contraction.

The companies’ WACC has been determined by using four approaches. It has been gathered from companies’ own annual reports, equity reports, DataStream and through independent calculations. When the WACCs has been taken from equity reports, it has only been taken from the most trustworthy and accredited banks and research houses, including Credit Suisse, Goldman Sachs, Nordea, Swedbank, JP Morgan Chase, Handelsbanken Capital Markets and Danske Markets Equity. WACCs have also been taken straight from the annual reports of certain companies. However, it is not customary for companies to provide investors with the company’s WACC estimate. The preferred way to determine the WACC has been through the use of the companies’ annual reports. Obviously, this arises from the notion that the companies’ managers tend to have the best knowledge of the companies in question. The subsequent way has been through equity reports. It would have been unrealistic to assume that one could compute WACC estimates that are superior to that of those analysts who have covered those companies for years. The third option that was exploited as a mean to find the best WACC estimate has been through the use of DataStream. Basically, the last resort has been to base the WACC figures on my own calculations. This decision has been taken as it is difficult to reach an unbiased, precise WACC.
When WACC calculations have been required, the computations have been performed in three steps. The cost of debt portion has been established by weighting the average interest rate cost of all the company’s debt outstanding. This particular approach can be debated as certain analysts claim that it is better to use current market conditions for the debt rate, i.e., the yield to maturity on debt. However, this can also be difficult to establish, as companies, depending upon their risk characteristics, including their Standard & Poor or Moody’s rating, their existing amount of debt outstanding, the particular project, and the economic climate, to mention a few aspects, can have significantly different yield-to-maturities on their debt. For those reasons, in this case, it might be better to use historical figures to calculate the companies’ cost of debt. Finally, the ultimate cost of debt figure that has been used, is one in which corporate taxes has been deducted from the cost of debt in order to reflect the benefits of the tax deductibility of interest.

The Company’s cost of equity has mainly been found in the company’s homepage. Basically, the companies’ stated required rate of return on equity has been used as a benchmark for their cost of equity. In rare occasions, the companies have had no such thing stated. When that has been the case, the CAPM model has been used in order to reach reasonable cost of equity rates. The CAPM, which is comprised of a risk free rate plus a beta multiplied by an (expected market return minus a risk free rate) has been calculated accordingly. The company beta and expected market returns as well as a risk free rate, has been found in financial servicing tools. The company’s cost of equity has then been calculated according to the CAPM standard. The debt and equity weighs have been decided upon or calculated using two different approaches. If the company has a stated debt-to-equity target that particular weights have been used. Although companies might have a debt-to-equity rate that is currently different from the stated one, the long-term debt-to-equity rate will usually converge towards the companies’ set debt-to-equity goals. Consequently, the company’s stated debt-to-equity rate will best reflect the company’s average long-term debt-to-equity-rate. The second way has been to look at the market value of the company’s common equity, i.e., its shares outstanding multiplied by their current market price (share value), and the book value of the company’s debt outstanding. Although it could be argued that it is better to use market values of debt, book values of debt are often times fairly similar to market values of debt as well as more objective (McLaney et al., 2004). After having performed the aforementioned steps, the cost of debt, the cost of equity as well as the value of the debt and the value of the equity has been reached, making it possible to establish the weights of the debt and of the equity and thus to reach WACC.

Given the difficulty in establishing an accurate WACC, the decision was made to use the average WACC for the five year period. The hope is that by doing this the inaccuracies of the WACC for one
year will cancel the inaccuracies of the WACC for another year. Rather than having a large positive
WACC error in one year, a smaller negative WACC error in the second, the expectation is that net-on-
net the average overall WACC will better reflect the company’s true WACC. This will also lead to less
EVAM volatility and one-time, large, negative or positive EVAM figures.

Three separate regressions have then been performed according to real estate intensity (RRI). RRI is
based upon a company’s percentage of gross real estate assets over its total tangible assets. The
higher the company’s figure the more real estate intense the company. Three scenarios have been
performed and based on the RRI level of 5%, 10% and 15%. The RRI division was deemed as most
fitting as it includes ranges of low real estate intense firms and high real estate intense firms.
Although this could lead one to question why a RRI of 20% or 25% was not performed, the answer
lies in that the RRI sample would be insufficient. The number of RRI observation would be too low,
not allowing one to make any credible inferences. The regression is performed on 172 observations
from the time period 2006 to 2009. The dependent variable (Y) is EVAM while PPTY, percentage
change in real estate asset, and total gross real estate represents the independent variables (X). In
the RRI of 5%, 117 companies are considered real estate intense while the remainders of the
companies (55) are considered non-real estate intense. For the 10% RRI, 94 companies are thought
of as real estate intense whilst 78 are non-real estate intense. This means that the gross real estate
asset accounts for more than 10% of the 94 companies’ total tangible asset. In the final 15% RRI
scenario, 59 companies are considered real estate intense whereas 113 companies are deemed non-
real estate intense. The notion that companies can be divided according to real estate intensity has
been supported by a number of academics (Liow, 1999; Manning & Roulac, 2001; Liow & Nappi-
Choulet, 2008; Nappi-Choulet et al., 2009; Park & Glascock, 2010;). Moreover, Nappi-Choulet et al.,
(2009), Liow & Nappi-Choulet (2008), and Brounen & Eichholtz (2005) also showed that a relationship
between a companies’ value creating ability and different real estate parameters, including PPTY,
percentage change in real estate asset, and total gross real estate exist.

As with any statistical analysis certain debatable issues will transpire. First off, in corporate balance
sheets applying Swedish accounting standards, real estate, similar to other corporate assets, are
reported at historical cost. During climates of economic expansions, this could lead to the role of real
estate being underestimated; likewise, during periods of economic recession, the role of real estate
could be overestimated. It would be more relevant to use current market values; however, this
information is not always readily available. However, according to IAS 40, a rule that was put into
place in Sweden on January the 1st 2005, companies, since 2005, are allowed to value their
properties at market values. IAS 40 can be applied provided that the properties “real value” can be
assessed in a “reliable” way (Bokföringsnämnden, 2009-11-30). Although the IFRS/IAS would allow companies to apply a fair value to their corporate real estate, it is unclear whether or not the firms have been doing this. When comparing the companies’ 2004 to 2005 real estate values, nothing is indicating that the IAS 40 rule is being applied and thus it is uncertain whether or not the real estate values presented are based on historical, current or a mix of the two approaches.

There are a number of observations that is significantly different from the sample mean EVAM of -0.39%. These observations includes those that have an EVAM of positive 10% or higher or a negative EVAM of 10% or lower. 18 observations fall into this category, including four values for Lundin Petroleum, three values for Retail & Brands, two values for AarhusKarlshamn, Meda and SSAB, as well as one value for Björn Borg, Boliden, Millicom, Sandvik and Seco Tools. A statistical analysis shows that the data is normally distributed, i.e., that the random variables cluster around a single mean. A low standard deviation implies that the data points are close to the mean, while a high standard deviation implies that the data spread is wider. The mean ($\mu$) is located at the center or the peak while the standard deviation shows the width of the distribution. A standard deviation of 1, states that 68.27% the population falls between ±1 σ (standard deviation). A standard deviation of 2, states that 95.45% of population falls with ±2 standard deviations; whereas 99.73% of the population falls with ±3 standard deviations (Hill, Griffiths & Lim, p.83, 2008). Given that the data is normally distributed one can use the normal distribution curve to investigate if the outliers are significantly influencing the sample. One can make use of three tests in order to check for the significance of the outliers in a normal distribution, including Dixon’s test, Rosner’s test and Grubb’s test. Dixon’s test is, however, only applicable if the sample size (n) is 25 or lower and hence must be rejected. Although Rosner’s test can be used for samples that include 25 to 500 observations, it can only detect up to 10 extreme values. Given that the estimated number of extreme outliers is 18 this test has to be rejected as well. That leaves Grubb’s test.

The Grubb’s test also known as the maximum normed residual test can be applied to our statistical analyses. However, the main drawback with the Grubb’s test is that it can only check for one outlier at the time, making it a rather time consuming test. However, if one wants to decrease the test time, the most extreme values could be investigated first. Rationally, if the most extreme outliers in not affecting the sample, than neither should the less extreme outliers and thus the test can be stopped once the most extreme outliers ceases to affecting the sample. In order to not leave anything to chance, all potential outliers have been investigated.

The first step in the Grubb’s test is to quantify the distance of the outliers in relation to the other values. This can be done by calculating the Z ratio, which is the difference between the outlier and
the mean divided by the standard deviation of the whole sample. Conceptually, the test will look like this:

$$Z = \frac{|\text{mean} - \text{value}|}{\text{SD}}$$

Given that the confidence interval in this investigation is set at 95%, the level of significance is 5%. The first notion might be to conclude that, in this Gaussian population, the values that have a standard deviation of ±1.96 or more from the mean should be excluded from the sample as they come from a different population. However, this can only be concluded if one knows the mean and standard deviation of the entire population. Given that non-real estate and non-financial companies have been excluded, the data does not represent the entire population. Consequently, a different approach has to be used. Instead one computes the p-values in order to determine if the values are significantly different from the mean. Before the p-value can be calculated the t-values for each of the different outliers have to be calculated. The t-distribution is similar to the normal distribution, but has heavier tails, making it more sensitive in detecting outliers. The t-value is found by applying the following formula:

$$T = \frac{\sqrt{(N(N - 2)Z^2)} - 2}{N - 1} - N(Z^2)$$

After the t-values have been determined the p-values can be calculated. Granted that these is a two-tailed test and the confidence interval it set at 95%, the significance level is 0.025 (0.05/2). The p-values can be calculated using an easy command in excel, namely TDIST. Once the p-values have been calculated, it is multiplied by the number of observations in the sample (172) to obtain the approximated p-value for the Grubb's test. The final step in the analysis is to set-up the null and alternative hypothesis.

The null hypothesis (H0): there is no outlier

The alternative hypothesis H1: there is an outlier

The null hypothesis should be rejected when the p-value is less than the significance level. In other words, when a value falls below the significance level, the conclusion that that value deviates from the mean could be drawn. The statistical analysis showed that three of the eighteen values significantly deviate from the mean, warranting further investigations. An additional regression was performed, excluding those three variables. However, no significant difference to the overall result was found for the t-values or the R². The Assessment has thus been made that those abnormal value
might be part of the natural variability of the sample and thus, nonetheless, should be included in the analysis.

19. Analysis

17.1 Subgroups and real estate intensity

The subsequent sections will investigate how well the non-real estate, non-financial large and mid cap companies have been doing from an Economic Value Added Momentum perspective. The first part will examine the categories total sales and net incomes as well as their total gross real estate assets and their proportion of real estate over gross tangible assets (PPTY).

From the Stockholm Stock Exchange (OMX) large and mid cap segment a grand total of 43 companies have been included in the analysis. The firms have been divided according to business sector. Eight categories have been defined; seven specific categories and one general category that hold those companies that do not fit into either one of the other categories. The production segment is the largest category and holds 8 firms or approximately 19% of the total sample. The Auto category is the smallest and includes Volvo, Scania and Autoliv. The specialty segment holds those companies which have a business division that is different from the others. These companies includes Axfod - a food retailer, Securitas - a private security company, Swedish Match - a cigar and snus company, and Hexagon - a measurement and visualization technologies company. Table 2 column 4 shows, the average gross amount of real estate assets held by the companies in each category from 2005 to 2009. The companies in the Auto sector (18,011MSEK) have the highest average gross real estate holdings, followed by the Commodities sector (8,528MSEK). The companies in the Clothes category (244MSEK) own significantly less real estate than the companies in the other sectors.

<table>
<thead>
<tr>
<th>Category</th>
<th># of companies</th>
<th>% of tot. companies</th>
<th>Average gross real estata assets from 2005 to 2009 (MSEK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes</td>
<td>5</td>
<td>11,6%</td>
<td>244</td>
</tr>
<tr>
<td>Commodities</td>
<td>5</td>
<td>11,6%</td>
<td>8 528</td>
</tr>
<tr>
<td>Pharma</td>
<td>6</td>
<td>14,0%</td>
<td>6 340</td>
</tr>
<tr>
<td>Production</td>
<td>8</td>
<td>18,6%</td>
<td>5 508</td>
</tr>
<tr>
<td>Specialty</td>
<td>4</td>
<td>9,3%</td>
<td>912</td>
</tr>
<tr>
<td>Telecom</td>
<td>6</td>
<td>14,0%</td>
<td>3 127</td>
</tr>
<tr>
<td>Auto</td>
<td>3</td>
<td>7,0%</td>
<td>18 011</td>
</tr>
<tr>
<td>Technology</td>
<td>6</td>
<td>14,0%</td>
<td>6 577</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43</strong></td>
<td><strong>100,0%</strong></td>
<td><strong>6 156</strong></td>
</tr>
</tbody>
</table>

Table 2
Table 3 and 4 displays the sales and net income figures for each category. It is important to realize that these are not average number but rather absolute figures. Consequently, the sales figure will always be positively affected by a higher number of companies in the category. On the other hand, net income can be either positively or negatively affected by a smaller or larger sample size since companies can obtain both negative and positive earnings results. The Telecom segment experienced the highest sales figures throughout the years but saw their net income plummet from 2007 and onwards as their profit margin decreased. In terms of sales, the Technology and Auto segments came in second and third. However, in terms of net income, the Technology sector came third while the Auto segment came last, experiencing negative earnings result. The Clothes and Specialty sectors had the most stable sales and earnings result. In this particular case, the low volatility of the Clothes segment is due to the fact that the clothes companies included in the analysis sell low to mid range products. This does not only mean that people can afford their products during economical downturn but also that people might substitute other, more expensive brands, for these, relatively cheaper brands. Similarly, food and security companies are also more defensive companies that are less affected by the economical recession of 2008 and 2009.

![Total Sales (SEK Million)](image)
Table 5 demonstrates the average gross real estate assets held by the companies in each segment. The firms in the Clothes and Specialty segment hold the least amount of real estate whereas the Auto, Production and Technology companies, collectively, hold the most. The Auto sector holds real estate of a total value that surpasses 65 billion crones. The Production, Technology, Pharma and Commodities sectors own between 42 and 50 billion worth of total real estate. In comparison, the Specialty and Clothes segments total real estate ownership is less than 4 billion. The average real estate holdings are also largest for the Auto industry at more than 20,000MSEK. The Technology and Commodities segments have similar and large average gross real estate holdings, but yet their combined average is less than the average of the Auto industry.

However, the average gross real estate assets that companies own are not only dependent upon the size of the company but also of its industry and business strategy. AstraZeneca, for instance, which has a market capitalization that is 10 times bigger than Alfa Laval, Assa Abloy and Atlas Copco, can afford to have larger real estate holdings. Nevertheless, the assumption that a larger company, in absolute terms by default, will own more real estate than a smaller company is flawed. H&M, for example, is the largest company in the OMX (measured by market cap), and yet it owns insignificant amounts of real estate. Still, this alleged problem can be circumvented by examining the percentage of a company’s real estate assets to its total tangible assets.
Table 6 shows the proportion of real estate over gross tangible assets (PPTY). The largest percentage of gross real estate assets is found in the commodities sector. The Pharma category is the most real estate intense (highest PPTY), reaching a PPTY of 33% in 2005. However, due to declines in AstraZeneca’s real estate holdings, the sector only held 4th position in 2009. The Telecom and Clothes companies, as well as the firms found in the Specialty sector only have 4%, 3% and 10% of their total tangible assets invested in real estate. Most categories have had pretty stable PPTY over the last five years, say for the Pharma and Auto industries, which have decreased and increased their PPTY with 10% and 6%, respectively.
17.2 The EVAM Composition

The EVAM is composed of trailing sales and the change in EVA. The EVA is sensitive to changes in WACC and the level of a company’s capital employment rate. The higher the WACC and the larger the capital employment rate the lower the EVA and the EVAM. The average WACC has been relatively stable (within the company itself) while the capital employment rate has been more volatile. During a company’s expansionary phase, the capital employment figure usually increases. However, during an economic downturn when a company’s sales and margins are decreasing it is often difficult for companies to quickly adjust their capital employment rate accordingly. There tend to be a time lag. As can be seen from table 7, during the upbeat economic climate (2005 – 2007), all sectors, excluding the Specialty sector, increased their capital employment rate by 25% on average. However, when the economy shifted, entering a period of economic recession (2008 – 2009) and companies began experiencing a decline in sales and shrinking margins, the capital employment rate still rose for most sectors or only marginally shrank. Firms that are more capital intense will experience more rapid earnings declines than less capital intense firms, as capital intense firms have a difficult time to reduce their capital employment rate.

<table>
<thead>
<tr>
<th>Total Capital Employed (CA)</th>
<th>2009</th>
<th>2008</th>
<th>2007</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes - Average CA</td>
<td>10 575</td>
<td>9 898</td>
<td>8 426</td>
<td>7 163</td>
<td>6 419</td>
</tr>
<tr>
<td>Commodities - Average CA</td>
<td>39 500</td>
<td>40 471</td>
<td>46 425</td>
<td>37 263</td>
<td>34 050</td>
</tr>
<tr>
<td>Pharma - Average CA</td>
<td>57 257</td>
<td>45 469</td>
<td>43 748</td>
<td>29 298</td>
<td>26 596</td>
</tr>
<tr>
<td>Specialty - Average CA</td>
<td>14 472</td>
<td>14 832</td>
<td>13 638</td>
<td>12 117</td>
<td>13 897</td>
</tr>
<tr>
<td>Telecom - Average CA</td>
<td>109 296</td>
<td>102 587</td>
<td>89 329</td>
<td>72 700</td>
<td>75 433</td>
</tr>
<tr>
<td>Auto - Average CA</td>
<td>98 238</td>
<td>99 395</td>
<td>90 173</td>
<td>80 697</td>
<td>78 463</td>
</tr>
<tr>
<td>Production - Average CA</td>
<td>34 360</td>
<td>34 571</td>
<td>30 006</td>
<td>25 211</td>
<td>25 976</td>
</tr>
<tr>
<td>Technology - Average CA</td>
<td>55 058</td>
<td>48 440</td>
<td>46 477</td>
<td>41 648</td>
<td>37 849</td>
</tr>
</tbody>
</table>

Table 7

If comparing table 7 and 8, it becomes apparent that the categories that uses the largest average capital employed (the Telecom and Auto sector) are also the sectors that suffered the largest decline in their net operating profit after tax (NOPAT) when the economy dipped in 2008 and 2009. The Commodities and Auto sectors experienced negative NOPAT in 2009, while the Pharma sector had their best year. The Pharma category is a defensive sector since people will continue to become ill even during economic recessions. Moreover, dealing with the additional stress and the added possibility of bankruptcy that is associated with economic downturns, many pharmaceutical companies are able to sell additional drugs during these periods. The Clothes sector was to only category that continued to experience an increase in NOPAT from 2005 to 2009. The EVAM is positively affected by a higher NOPAT.
Given the difficulty in establishing an accurate WACC, the decision was made to use the average WACC for the 5 year time-span. As previously discussed, the hope is that by doing this the inaccuracies of the WACC for one year will cancel the inaccuracies of the WACC for another year. Rather than having a large positive WACC error in one year, a smaller negative WACC flaw in the second, the expectation is that net-on-net the average overall WACC will better reflect the company’s true WACC. This will also lead to less EVAM volatility and one-time, large, negative or positive EVAM figures.

As illustrated by table 9, the average WACC differs quite notable between the different sectors (Standard Deviation of 0.6%). The Auto sector has the cheapest cost of capital. Although that subgroup has not been performing well, the low WACC can be attributed to their substantial amount of tangible assets. Provided that they can take loans that can be covered by a tangible asset in case of bankruptcy, say a specific plant or a collection of cars, investors are seemingly allowing the companies’ a lower cost of debt and equity capital. Thanks to the Auto sector’s relative cheap cost of capital, the EVA and the EVAM figures have been a lot better than they otherwise would have been (given higher cost of capital). The WACC for Telecom industry is the highest. This might be attributed to them being in a high tech industry where demand for a certain product could rapidly shrink or a certain technology can quickly become obsolete. The Clothes sector also has a high WACC of 9.02%, relative to the other sectors. This could probably be based on two specific features. First off, many of the companies in the Clothes industry belongs to the mid cap segment. In other words, they might not be as equipped as large cap companies to withstand economic downturns or operational dilemmas. Secondly, the fashion industry is both fast moving, where trend quickly come and goes and where competitive is fierce. Consequently, if a company is unable to follow new trends, innovate or penetrate new markets, they could swiftly begin to lose money. One of the main surprises is the Pharma sector. Given the characteristics of their industry one would expect a higher WACC. The
reason, why they on average have had low WACCs, might be attributed to the fact that they already have proven and existing products on the market. Consequently, even if a new product would fail, the cash flow generated from their other products, is large enough to offset any particular new product failures. The Production Sector’s relatively low WACC can be attributed to fact that the companies in this sector are of all large size (Large cap companies), have been in the market for a long time and have both proven and successful products.

There are some noticeable differences between the WACC averages between the different sectors. The main differences can be attributed to difference in risk characteristics, the size of the company, the current cash generating abilities, the volatility and rivalry in the industry as well as amount of tangible assets securing the debt issuance. This is an important element to consider as even small changes to the companies’ WACC can lead to large EVAM changes.

<table>
<thead>
<tr>
<th>Average WACC (2005 - 2009)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes</td>
<td>9.02%</td>
</tr>
<tr>
<td>Commodities</td>
<td>8.85%</td>
</tr>
<tr>
<td>Pharma</td>
<td>8.37%</td>
</tr>
<tr>
<td>Specialty</td>
<td>9.25%</td>
</tr>
<tr>
<td>Telecom</td>
<td>9.37%</td>
</tr>
<tr>
<td>Auto</td>
<td>7.67%</td>
</tr>
<tr>
<td>Production</td>
<td>8.14%</td>
</tr>
<tr>
<td>Technology</td>
<td>8.27%</td>
</tr>
</tbody>
</table>

Table 9

Table 10 shows the total EVA and the average EVA for each category from 2005 to 2009. The Clothes sector has been able to increasingly generate shareholders’ value to investors for all of the years. This is a difficult endeavor and shows that the Swedish Clothes companies know what they are doing. There were two companies that were unable to show positive EVA results, namely, New Wave Group and Retail & Brands. However, they were lifted thanks to strong positive EVA results from H&M. Interestingly enough, New Wave Group has large quantities of real estate while the company Retail & Brands owns close to no real estate. While the Pharma sector had volatile EVA results but positive, they only manage to maintain the second highest average EVA (2005-2009). The Telecom industry, though obtaining a negative EVA result in 2009, they had the average highest EVA of 5,428MSEK from 2005 to 2009. The Specialty sector, though having the lowest positive EVA and continuous low EVAs from 2005 to 2009, came in 6th place. The Commodities sector, though having far from the worst EVA for a single year, created the worst average return to the shareholders (-1,917MSEK). As the economy turn in 2008, the Auto industry experienced heavy losses. They obtain an EVA of

### Economic Value Added

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes</td>
<td>11 525</td>
<td>11 124</td>
<td>10 847</td>
<td>8 138</td>
<td>6 928</td>
</tr>
<tr>
<td>Average EVA</td>
<td>2 305</td>
<td>2 225</td>
<td>2 169</td>
<td>1 628</td>
<td>1 386</td>
</tr>
<tr>
<td>Commodities</td>
<td>-24 618</td>
<td>-12 856</td>
<td>-7 108</td>
<td>2 645</td>
<td>-5 975</td>
</tr>
<tr>
<td>Average EVA</td>
<td>-4 924</td>
<td>-2 571</td>
<td>-1 422</td>
<td>529</td>
<td>-1 195</td>
</tr>
<tr>
<td>Pharma</td>
<td>37 884</td>
<td>22 311</td>
<td>19 822</td>
<td>31 142</td>
<td>23 175</td>
</tr>
<tr>
<td>Average EVA</td>
<td>6 314</td>
<td>3 718</td>
<td>3 304</td>
<td>5 190</td>
<td>3 862</td>
</tr>
<tr>
<td>Specialty</td>
<td>3 009</td>
<td>2 884</td>
<td>1 057</td>
<td>1 497</td>
<td>1 223</td>
</tr>
<tr>
<td>Average EVA</td>
<td>752</td>
<td>721</td>
<td>264</td>
<td>374</td>
<td>306</td>
</tr>
<tr>
<td>Telecom</td>
<td>-10 765</td>
<td>25 361</td>
<td>64 593</td>
<td>49 909</td>
<td>33 743</td>
</tr>
<tr>
<td>Average EVA</td>
<td>-1 794</td>
<td>4 227</td>
<td>10 765</td>
<td>8 318</td>
<td>5 624</td>
</tr>
<tr>
<td>Auto</td>
<td>-32 395</td>
<td>-751</td>
<td>5 849</td>
<td>7 240</td>
<td>2 373</td>
</tr>
<tr>
<td>Average EVA</td>
<td>-10 798</td>
<td>-250</td>
<td>1 950</td>
<td>2 413</td>
<td>791</td>
</tr>
<tr>
<td>Production</td>
<td>-2 270</td>
<td>16 311</td>
<td>20 851</td>
<td>14 317</td>
<td>4 718</td>
</tr>
<tr>
<td>Average EVA</td>
<td>-284</td>
<td>2 039</td>
<td>2 606</td>
<td>1 790</td>
<td>590</td>
</tr>
<tr>
<td>Technology</td>
<td>4 273</td>
<td>8 190</td>
<td>15 884</td>
<td>1 793</td>
<td>-5 230</td>
</tr>
<tr>
<td>Average EVA</td>
<td>712</td>
<td>1 365</td>
<td>2 647</td>
<td>299</td>
<td>-872</td>
</tr>
</tbody>
</table>

**17.3 Economic Value Added Momentum**

Table 11 shows the change in EVA, the total sales for each individual category and the EVAM. By analyzing the companies change in EVA and their trailing sales a different picture arises. The Telecom sector, which had the best average EVA, actually obtained an average negative EVAM (1.07%). This is due to the fact that the EVAM is scaled and high positive outliers don’t have the same impact as they do when calculating the EVA. Even after having scaled the Pharma sector, they obtain a high EVAM, reaching 1.61% on average. The Commodities sector was closely followed by the Auto sector, obtaining the worst EVAM of -2.03% and 1.96% respectively. The Clothes sector obtained the average highest EVAM (1.28%) (after Pharma), followed by the Technology sector (0.71%). Specialty sector managed to have an average positive EVAM of 0.38%, while the Production sector, though having an average positive EVA, had an average negative EVAM of 0.16%. However, it is important to
realize that minor changes in the companies’ WACC can significantly impact, both positively and negatively, a company’s EVAM. Moreover, a higher sales figure that does not translate into higher earnings, will diminish a companies’ EVAM. It is hence crucial for companies’ to both increase sales and to continue having healthy margins.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clothes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>401</td>
<td>277</td>
<td>2 709</td>
<td>1 211</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>131 382</td>
<td>117 233</td>
<td>104 760</td>
<td>89 696</td>
<td>80 049</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>0,3%</td>
<td>0,3%</td>
<td>3,0%</td>
<td>1,5%</td>
<td></td>
</tr>
<tr>
<td><strong>Commodities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>-11 762</td>
<td>-5 748</td>
<td>-9 753</td>
<td>8 620</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>174 549</td>
<td>215 069</td>
<td>201 734</td>
<td>216 600</td>
<td>183 934</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>-5,5%</td>
<td>-2,8%</td>
<td>-4,5%</td>
<td>4,7%</td>
<td></td>
</tr>
<tr>
<td><strong>Pharma</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>15 573</td>
<td>2 488</td>
<td>-11 320</td>
<td>7 968</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>295 948</td>
<td>239 392</td>
<td>230 948</td>
<td>219 784</td>
<td>198 275</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>6,5%</td>
<td>1,1%</td>
<td>-5,2%</td>
<td>4,0%</td>
<td></td>
</tr>
<tr>
<td><strong>Specialty</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>125</td>
<td>1 827</td>
<td>-440</td>
<td>274</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>132 339</td>
<td>125 507</td>
<td>117 109</td>
<td>122 738</td>
<td>115 541</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>0,1%</td>
<td>1,6%</td>
<td>-0,4%</td>
<td>0,2%</td>
<td></td>
</tr>
<tr>
<td><strong>Telecom</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>-36 126</td>
<td>-39 232</td>
<td>14 684</td>
<td>16 166</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>807 715</td>
<td>855 187</td>
<td>809 126</td>
<td>701 480</td>
<td>601 274</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>-4,2%</td>
<td>-4,8%</td>
<td>2,1%</td>
<td>2,7%</td>
<td></td>
</tr>
<tr>
<td><strong>Auto</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>-31 643</td>
<td>-6 600</td>
<td>-1 392</td>
<td>4 867</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>319 635</td>
<td>435 094</td>
<td>415 669</td>
<td>375 230</td>
<td>350 258</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>-7,3%</td>
<td>-1,6%</td>
<td>-0,4%</td>
<td>1,4%</td>
<td></td>
</tr>
<tr>
<td><strong>Production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>-18 580</td>
<td>-4 540</td>
<td>6 534</td>
<td>9 599</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>307 060</td>
<td>345 331</td>
<td>318 943</td>
<td>280 176</td>
<td>250 562</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>-5,4%</td>
<td>-1,4%</td>
<td>2,3%</td>
<td>3,8%</td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in EVA</td>
<td>-3 917</td>
<td>-7 694</td>
<td>14 091</td>
<td>7 023</td>
<td></td>
</tr>
<tr>
<td>Total Sales</td>
<td>477 678</td>
<td>461 782</td>
<td>427 837</td>
<td>394 576</td>
<td>367 212</td>
</tr>
<tr>
<td><strong>EVAM</strong></td>
<td>-0,8%</td>
<td>-1,8%</td>
<td>3,6%</td>
<td>1,9%</td>
<td></td>
</tr>
</tbody>
</table>
20. Empirical finding

18.1 Average and Median EVAM

Table 12 shows the four year average and median EVAM for each subgroup from 2006 to 2009. The data varies significantly from the different subgroups. The subgroup that has the best average (1.28%) and median (1.15%) EVAM return from 2006 to 2009 is the Telecom sector. This subgroup has average gross real estate holdings of approximately 3,127MSEK, situating it as the group that has the third lowest quantity of real estate. Interestingly, the subgroup that has the lowest absolute real estate holdings (244MSEK), the Clothes sector, has the second and third worst average (-2.27%) and median (-0.67%) EVAM. The Auto sector, which, by far, has the largest average real estate holdings (18,011MSEK), had the third worst average EVAM (-0.47%). The Commodities sector had both the worst average (-9.28%) and median (-4.59%) EVAM. This group also holds the second largest amount of real estate assets (8,528MSEK). The Technology sector places itself second has to the group that has the best average (0.81%) EVAM. This group has more than twice the average amount of real estate (6,577MSEK) than the Telecom group. The Production group had a median positive EVAM but an average negative EVAM due to a strong negative EVAM in 2009.

<table>
<thead>
<tr>
<th>Subgroups (2006-2009)</th>
<th>Clothes</th>
<th>Commodities</th>
<th>Pharma</th>
<th>Production</th>
<th>Specialty</th>
<th>Telecom</th>
<th>Auto</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVAM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>-2.27%</td>
<td>-9.28%</td>
<td>-0.08%</td>
<td>0.48%</td>
<td>0.39%</td>
<td>1.28%</td>
<td>-0.47%</td>
<td>0.81%</td>
</tr>
<tr>
<td>Median</td>
<td>-0.67%</td>
<td>-4.59%</td>
<td>0.23%</td>
<td>-0.47%</td>
<td>0.67%</td>
<td>1.15%</td>
<td>-1.40%</td>
<td>0.50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Gross Real Estate in MSEK (2005-2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes</td>
</tr>
<tr>
<td>Commodities</td>
</tr>
<tr>
<td>Pharma</td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Specialty</td>
</tr>
<tr>
<td>Telecom</td>
</tr>
<tr>
<td>Auto</td>
</tr>
<tr>
<td>Technology</td>
</tr>
</tbody>
</table>

Table 12

Table 13
18.2 Regression Analysis

The final step of this analysis is to analyze the companies’ real estate holdings and their EVAM from a statistical point of view to determine if the company’s positive or negative EVAM can be explained by the company’s quantity of real estate assets. The influence of gross real estate assets on EVAM will be threefold in order to investigate if any of the different tests is statistically significant. The three tests are divided according to real estate intensity. The first test is based on a real estate intensity of 5%, whereas the second and third tests are based on a real estate intensity of 10% and 15% respectively. A 5% real estate intensity cut-off point means that all companies that have a ratio of gross real estate assets/total tangible assets (PPTY) that surpasses 5% are considered real estate intense. Similarly, in the 10% and 15% real estate intensity cut-off point, companies must have a PPTY beyond 10% and 15% to be considered real estate intense. In the 5% real estate intensity group, 117 companies are considered real estate intense or 68% of the sample. In the 10% group, 94 companies are deemed real estate intense, accounting for 55% of the sample; in the 15% group, 59 companies are regarded as real estate intense, translating into approximately 35% of the sample.

The regression is performed on EVAM, PPTY, percentage change in real estate and total gross real estate. The dependent variable (Y) is EVAM while PPTY, percentage change in real estate and total gross real estate represents the independent variables (X). In the three experiments the companies’ PPTY is relatively stable, meaning that if a company is included in the non-real estate intense group in 2006 it is most probably included in that same group for the remainder of the years. There are, however, certain companies that are included in the real estate intense group in some years only to be included in the non-real estate intense group for another year. The companies sometimes exist in the real estate intense group because their tangible assets have increased significantly and not because their absolute amounts of dollars owned in real estate have declined; other times the companies enter the real estate intense group because their tangible assets have decreased (this is however less common). Nonetheless, an extended regression analysis reveals that even if those companies that changed from the real estate intense group to the non-real estate intense group would have remained in the real estate intense group, the result would have been the same; the opposite also holds true.
Table 12 shows the result of the regression for the 5%, 10% and 15% real estate intensity tests. The 172 observations are divided between real estate intense and non-real estate intense groups for each of the three investigations. As the real estate intensity criteria increases, the number of companies included in the real estate intense group decreases. At the 5% intensity, the adjusted $R^2$ of 0.15 (real estate intense) and 0.13 (non-real estate intense) are not sufficient goodness-of-fit measurements, meaning that there is a weak relationship between the dependent ($Y$) and the independent variables ($X$). Furthermore, the t-values for the $x$-variables are also too low. The adjusted $R^2$ of 0.23 and 0.15 for the real estate intense and the non-real estate intense group at the 10% intensity is a better fit than the previous one. Oftentimes though a good $R^2$ should be 0.50 or higher. However, this can also be disputed. As the quality of the data should not only be based on how well the model predicts the sample data, but also on factors such as the “signs and magnitude of the estimates, their statistical and economic significance, the precision on their estimation, and the ability of the fitted model to predict values of the dependent variables that were not in the estimation sample” (Hill, Griffiths & Lim, p.83, 2008). The t-value for the real estate intense group is too low for both the gross real estate assets and the % change in real estate assets variables but sufficient the PPTY variable. The t-value of -2.05 reveals that there is a negative relationship between EVAM and PPTY and the 10% real estate intensity. However, it is important to realize that a weak relationship between EVAM and PPTY exists ($R^2 = 0.23$). The variables included in the non-real estate intense group at the 10% real estate intensity also fail to explain the EVAM. The final regression was performed on those companies that have 15% or more of their total tangible assets invested in real estate. 59 of the companies in the sample had a real estate intensity ratio that was 15% or higher. The regression reveals that there is a poor correlation between the dependent variable (EVAM) and the independent variables. The adjusted $R^2$ of 0.09 and 0.12 are not sufficient numbers to use to draw any strong conclusions. Similarly, the t-values across the spectrum is low, none surpassing 1.00.
## Regression Analysis

<table>
<thead>
<tr>
<th></th>
<th>Real Estate Intense Companies</th>
<th>Non-Real Estate Intense Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-value</td>
</tr>
<tr>
<td>*PPTY</td>
<td>-26</td>
<td>-1,37</td>
</tr>
<tr>
<td>Total Real Estate Assets</td>
<td>1</td>
<td>0,74</td>
</tr>
<tr>
<td>% Change in Real Estate Assets</td>
<td>-12</td>
<td>-0,19</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0,15</td>
<td></td>
</tr>
<tr>
<td>No. of Observations</td>
<td>117</td>
<td></td>
</tr>
</tbody>
</table>

*Gross real estate/total tangible assets

---

### Table 14

- **EVAM** at 5%, 10%, and 15%
- **Adjusted R²**
- **No. of Observations**
21. Results

The results are largely inconclusive. The only data that shows that there might be a negative relationship between EVAM and PPTY was the regression performed at the 10% real estate intensity. This could suggest that companies’ that have a PPTY of between 10% and 15% might have negatively impacted their EVAM. This in turn could suggest that companies should either lower their real estate holdings to a threshold that is below 10% of their total tangible assets or increase it to 15% or more. This in turn has two interesting implications. Firstly, that companies’ that have zero or low real estate holdings are not negatively affected by their real estate holdings though not managed correctly; or, that the real estate is more easily managed and thus, no real, real estate expertise is needed. Secondly, that those companies that have larger amounts of real estate holdings might have more real estate experience, specific real estate personal or some other real estate edge that enables them to manage their properties adequately. The companies that are in-between the 10% and 15% real estate division might not deem it cost effective to have specific real estate professionals or to invest in real estate know-how; in the same time, the firm’s own too much real estate to do nothing; it will simple cost the companies too much and ultimately impact the firms’ values. These companies best option might thus be to either invest more in real estate or to divest their real estate holdings.

On one hand this would support Liow and Ooi (2004) claim that companies should focus their energy and resources on their core business competence. On the other hand, however, it also shows that companies that have larger real estate holdings might have sufficient expertise and skills to manage their real estate efficiently. Nourse (1994) and Rodriguez & Sirman (1996) found that most non-real estate companies lack the managerial skills and expertise to properly manage their real estate holdings. However, that was more than a decade ago and perhaps companies have now both become more real estate conscious and more willing to put assets into property management. An in-house real estate team might be more cost effective than to outsource or to perform a S&LB.

However, it is important to realize that the goodness-of-fit, the $R^2$, was quite low. Moreover, one can also view the significance at the 10% real estate intensity segment as a weakness as neither the 5% nor the 15% real estate intensity regression showed any specific evidence as to a better real estate approach or revealed a particular pattern. Consequently, the EVAM might be a useful tool in a variety of different areas, yet, as a tool for evaluating real estate’s impact on a firm’s value creating aspects, it might not be the best of instruments.
22. Practical implications

There are certain practical issues that need to be discussed. One noteworthy issue is that real estate is reported at historical cost rather than at current market values. If, for example, a company’s real estate was bought many years ago and during an era of economic expansion, the logical notion is that the current but historical value of the company’s real estate is undervalued. Of course, if a company’s real estate was bought during an economic peak and the financial climate has since deteriorated, the book values of the companies’ real estate might be overestimated. However, as the economy historically have experienced more expansionary periods rather than contractionary periods, on average, companies’ real estate assets are undervalued. Economic recession and booms can dilute both the positive and negative aspects of real estate ownership. This investigation seeks to neutralize this phenomenon though, by including two periods of economic expansion and two periods of economic recessions. Nonetheless, if the two periods of economic recession were more severe than the two periods of expansion, they would still not cancel each other out. Logically, it is also unrealistic to expect the two different economical periods to carry equal weights. Moreover, as companies operate in different industries and have different financial compositions, the firms would, in a different ways, be influenced by the economy. As previously mentioned, some companies are defensive, while others are procyclical and countercyclical. This basically entails that certain companies, by default, do better during periods of economic recession while other do worse, while others are seemingly unaffected by the state of the economy.

Other aspects that have to be taken under consideration are WACCs, tax rates and the capital employment rates. The firms’ WACC can tremendously affect the companies’ EVAM. Even a small percentage change in WACC can push the EVAM into the red (negative) or pull the EVAM into the green (positive). Although the WACC calculation has been meticulously computed, small discrepancies and disagreements as to a company’s weighted average cost of capital (WACC) will always exist. The companies’ tax rates can differ substantially from year to year due, among other, to certain write-offs or particular corporate sell-offs. Although an average tax rate, free from one-time tax increasing or decreasing events, have been sought, it is difficult to make all the correct and necessary adjustments – a certain portion of skepticism will always be prevalent. The capital employed portion is also an important aspect to correctly compute in order to reach a truthful EVAM. Similarly to the WACC, when calculating the capital employed, assessment as to what items to include as well as exclude has to be made. This is hardly ever clear-cut, and probably no two analysts will always reach the exact same capital employment rate for the same company.
In this academic paper three independent variables (X) were use to assess the impact of CRE ownership. The variables have previously been proven to be good in assessing the impact of CRE ownership on wealth creation (Nappi-Choulet et al., 2009; Liow and Ooi, 2004). However, this does not exclude the possibility that some other additional variable would have been a good compliment to the regression. This possibility was, however, evaluated, and certain variables, that was thought off as able to impact the EVAM, were included. However, those variables proved not to significantly impact the independent variable (Y) and were thus later terminated. Naturally, the possibility that a good supplemental variable has been overlooked can certainly not be utterly dismissed. Nonetheless, it is important to not just include additional variables in order to reach a higher goodness-of-fit measurement (R-square) but to include variables that one thinks would truly impact the independent variable. In this case, it was deemed that no such variables were present.

Another thing that has to be discussed with the regression analysis is the percentage change in real estate variable. This variable can be both very sensitive and passive to a company’s change in real estate assets. For example, if a company has approximately 50MSEK in real estate holdings and then purchase an additional 25MSEK of real estate in the subsequent year the percentage change in real estate is 50%. On the other hand, if a company has 250MSEK in real estate and purchases an additional 25MSEK, the percentage change in real estate is only 10%. Consequently, though the absolute figures might be of equal amounts, the percentage change in real estate for the company with smaller initial real estate holdings will be significantly higher. However, this is somewhat circumvented given the fact that companies with larger real estate holdings tends to buy significantly larger amounts of real estate than companies with initial smaller amounts of real estate assets, somewhat equalizing the percentage changes. However, when a company has as little as 1MSEK or 2MSEK of real estate and then in subsequent years shown 4MSEK or 5MSEK worth of real estate, the assessment has been not to increase the real estate by 100% or 200% but rather keep it at zero or a few percentages as to not distort the impact of the change in real estate to EVAM.

The EVA is recognized as a good corporate performance measurement tool that can be applied in a variety of different fields. However, the EVAM has not yet reached the same level of recognition and not many academic papers have been assessing the EVAM usefulness. Although it contains many of the attributes found in the EVA, and conceptually should work as a means to benchmark performance among companies and across industries, it has not yet been ample tested. I am pleased to be, to my knowledge, one of the first researchers to test the usefulness of the EVAM in this sort of setting. It is, however, important to realize that this is just one, of many ways, in which one can attempt to establish if CRE ownership is favorable or unfavorable from a value added perspective.
Moreover, there are also, other, intangible and not just monetary aspects, that has to be assessed before deciding whether to own real estate or not. For instance, there could be certain strategic benefits of owning their real estate; prime real estate holdings can boost corporate image; corporate real estate can work as business collateral or as a security against difficult times; corporate real estate ownership ensures contract continuation and unrestrictive property modifications. Ultimately, companies should not rush the CRE decision, but weight all the pros and the cons before deciding on what choice that would best help them reach strategic, financial and operational success.
23. Appendix

21.1 Activity Sector and Company Information

**Clothes**

H&M
Employ 87,000 people. Engaged in the design, production and retail of clothing items

Kappahl
Employ 4,800 people. Sells affordable fashion to men, women and children

Björn Borg
The company sells sporting goods including underwear, shoes, eyewear and bags

**Retail & Brands**

Employ 420 people. The company operates and develops fashion, clothing, accessories, jewelry and cosmetics stores

New Wave Group
Employ 2,200 people. The company designs, acquires and develops brands and products in the corporate promotion, gifts and home furnishings sectors.

**Commodities**

Stora Enso
Employ 26,000 people. The company is a packaging, paper and wood products industry firm.

Aarhus Karlshamn
Employ 2,500 people. AAK refines vegetable oils for specialized products (beauty and personal care, confectionary fats and food ingredients)

Lundin Petroleum
Employ 1,000 people. An oil and gas exploration and production company

Boliden
Employees 4,400 people. Metals company that mainly deals with zinc and copper.

SSAB
Employ 4,000 people. Steel producer

**Pharmaceutical**

Elekta
Employ 2,500 people. The company develops tools and treatment planning systems for radiation therapy and radiosurgery for cancer and brain disorders

Sectra AB
Employ 600 people. The company develops and sells medical systems and secures communication systems.
Getinge
Employ 12,000 people. A medical technology company

Astrazeneca
Employ 62,000 people. A global biopharmaceutical company

Biovitrum
Employ 500 people. Develops and provides specialty pharmaceuticals for patients with rare diseases and significant medical needs.

Meda
Employ 1,700 people. Meda is a specialty pharma company that focuses on respiratory, cardiology, dermatology, pain and inflammation.

Production
Seco tools
Employ 5,300 people. Manufactures and supplies carbide cutting tools and associated equipment.

Lindab
Employ 4,400 people. Develops, manufactures, markets and distributes ventilation and building components in steel

B&B Tools
Employ 1,900 people. Supplier of industrial consumables, industrial components and related services to the Nordic industry.

BE Group
Employ 310 people. Is a service, distributing and pre-processing company in steel, stainless steel and in the aluminum segments

Assa Abloy
Employ 30,000 people. Produces door opening solutions and locks

Atlas Copco
Employ 33,000 people. Produces and provides industrial productivity solutions

Sandvik
Employ 47,000 people. Produces tools for metal cutting in cemented carbide and high-speed steel

SCA
Employ 45,000 people. Develops, produces and markets personal care products

Specialty
Hexagon
Employ 12,000 people. Provides 3D solutions to design, measure and position objects, and to process and present data.

Axfood
Employ 7,000 people. Conducts food retail and wholesale trade
Securitas
Employ 280,000 people. A private security company

Swedish Match
Employ 4,000 people. A cigar and snus company

**Telecom**
Ericsson
Employ 90,000 people. Provider of telecommunications equipment and related services

Modern Times Group
Employ 3,000 people. Is an entertainment broadcasting group

Nokia
Employ 125,000 people. Primarily engaged in the manufacturing of mobile devices and in converging.

Tele2
Employ 7,000 people. Mobile operator

TeliaSonera
Employ 30,000 people. Provides network access and telecommunication services

Millicom
The company provides prepaid cellular telephony services in emerging markets

**Auto**
Autoliv
Employ 38,000 people. Provides automotive safety (seatbelts and airbags)

Scania
Employ 36,000 people. Manufacturers of trucks and buses for heavy transport applications

Volvo
Employ 90,000 people. Supplier of commercial transport including trucks & buses

**Technology**
ABB
Employ 124,000. Provides solutions in power products and power systems among others

Alfa Laval
Employ 12,000 people. Produces and supplies products and solutions for heat transfer & separation

Electrolux
Employ 51,000 people. Produces household appliances and appliances for professional use

Husqvarna
Employ 16,000 people. Produces outdoor power products
SKF
Employ 42,000 people. Produces equipment and tools for the mining and construction industries.

Cardo
Supplies industrial door and logistics systems as well as wastewater treatment, dewatering systems and process equipment for the pulp and paper industry
24. References


